

# Aviation News

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**American and British Jet-Propelled Planes:** Progress in development of American and British jet-propelled aircraft first announced last January is reported and first pictures of the planes are shown here. Above is the Bell Airacomet which has been seen by many industry people and below is the Gloucester, the British jet job. Details of the craft are still secret.

## SWPA Price Policy Follows Pogue Group's General Plan

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## Others Likely to Follow AA on New Low Cargo Tariffs

Interest in proposed rate reductions believed to presage general move toward development of volume business through slashing of costs....Page 49

## Urge Lightplane Builders to Ask Civil Output Permits

Demand for small craft will remain brisk even after best surplus supply is sold, Washington officials believe.....Page 23

## Model Feeder Airliner Data Compiled for Carriers

FAA Technical Committee specifies 18-22 place all metal, high wing, twin engine monoplane with additional space for ton of cargo.....Page 50

## "Should I Use Constant Volume or Variable Volume Aircraft Pumps?"



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## THE AVIATION NEWS

# Washington Observer

**INTERNATIONAL FAIRLEY**—Last of delegates to represent the United States at the international aviation conference in the U. S. next month is being equipped with customary jockeying for position. While names are not available, it is a safe assumption there will be Congressional representatives. Present plans call for no representatives from industry but both airlines and manufacturers will be kept advised on proceedings and probably will be asked to hold themselves in readiness for consultation.

**TECHNICAL STAFFS IMPORTANT**—It appears likely that the technical advisers to the delegates will be called on for conference detail work. General agreement has been reached in Washington on technical phases, on which we are far ahead of other delegations. Part of the conference job will be setting our technical program to other delegations. Our standards are high. This will involve effort by others to equal our requirements on such matters as airworthiness requirements and safety regulations and devices.

**CANADIAN ALUMINUM IMPORTED**—The board set upon the aluminum shortage when there was an aluminum shortage in evening back many fold. It is beginning to be a problem. Aluminum Co. of Canada will deliver an estimated 97,000,000 pounds of aluminum to the United States between now and the end of the year when, in payment for U. S. loans,

needs to build aluminum facilities in Canada when there were shortages. The aluminum industry in the United States already has curtailed production and arrangements are being made with Aluminum Co. of Canada to defer indefinitely delivery of an additional 250,000,000 pounds under contract.

**STEAMSHIP REPORT**—Look for the report of the House Merchant Marine and Fisheries Committee shortly on the subject of operation of aircraft by merchant companies. It probably will be filed some time during the Congressional recess. It is virtually conclusive that the report will strongly recommend an open door policy with regard to steamship lines entering the air transport field. This issue may develop into one of the hottest of the new Congress.

**NO SERPLUS AIRCRAFT ACCIDENTS**—Preliminary investigations by Washington officials of reports that surplus light aircraft have been in accidents because of poor condition relates those reports completely. There have been no accidents reported to CAA that could be attributed to plane or engine failure.

**SWPA PROBLEM**—One of the chief problems now facing Marshall War Property Administration, as well as the various disposal agencies, is that of personnel and internal organization. Top positions are going begging be-

One of Air Group One's custom-fitted Helldivers roars to a raid on the Marianas







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## Price Policy of SWPA Follows General Plan of Pogue Group

Only major difference in establishing of values on surplus aircraft is procedure set up for determining prices of transport planes, SWPA following depreciation method.

By WILLIAM G. KEY

The aircraft price policy established by the Surplus War Property Administration closely follows the report of the Surplus Aircraft Property Subcommittee, headed by CAB Chairman L. Welch Pogue, the only major variation being procedures set up for pricing of transport planes.

The Harvard School of Business Administration study recommended, and this recommendation was approved by the Pogue Subcommittee, that transport prices be based on the probable economic life of the planes at rates comparable with established airline depreciation rates on similar equipment.

**Follows Alternative Method**—The SWPA policy, however, generally follows the alternative depreciation method submitted in the Harvard report and the formula worked out with the Army for prices to be paid by airlines for planes taken over by the government early in the war.

Industry sources say the formula used by SWPA will mean a higher cost to purchasers that will tend to make early replacement of planes more desirable when they are being operated on a lease or terminable installment basis.

The policy of SWPA is provisional and designed for use during the period of short supply. The Pogue Subcommittee opposed such a policy, saying a fixed price should remain as firm as possible during the disposal period. The SWPA policy statement specifies that applicants for transports be warned of the provisional character of the formula and advised of the possibility of "downward revision in future prices."

**Breakdown**—In working out the

formula, SWPA breaks down transport aircraft into two groups. In Group 1 are multi-engined planes of 12,500 pounds gross weight and over. This would include Lockheed and larger types. In Group 2 are single and multi-engined aircraft of less than 17,500 pounds gross weight, primarily suitable for feeder lines and executive transport uses.

One model in each group "currently in production and in broad general use" will be selected as a "base model" for determination of type price. Approximate average manufacturing cost of the base model during the first six months of 1944 will be established as the type price of the plane se-

lected. (The C-47, for example, undoubtedly will be the base model of Group 1 and the cost of manufacture is generally estimated by industry sources to be \$125,000, although it may have run lower during the first six months of 1944, taken as a whole.)

**Other Factors**—Type prices of other models in the same group will take into account differences in seating capacity, latest date of manufacture, cost of operation and "estimated cost of manufacture, if manufactured during the first six months of 1944 in volume equal to that achieved in the case of the base model during that period." This, SWPA says, will achieve a purpose of fixing reasonably comparative prices on models in the same group.

Then, the individual prices of transport planes will be the type price, less reasonable allowances for cost of necessary repairs, general wear and tear, and cost of conversion. Cost of conversion will not be allowed where planes are to be used for cargo only, the price policy specifying that "when cost of conversion is allowed, type price will be that established for



### ANOTHER NAZI AIR WEAPON FIZZLES!

Just retired in this country is that sketch prepared by us aerial on The Aeroplane, British weekly, showing the components Messerschmitt 189-Junkers 88 shown by the Germans several times recently without effect. The pilotless JU 88 carried explosives only and was released over the target by the pilot of the other craft.

the converted plane." This would, in effect, equalize the use prices paid for a passenger plane and a plane bought for cargo operations only. It means also that airlines or operators wanting to do their own conversion must keep within cost of conversion by the manufacturer or pay a higher total price for the plane.

**Accepts Recommendations**—The price policy accepts the Payne and Harvard recommendations for disposal of the planes, at the option of the purchaser, by lease, leasehold installation or cash sale. Annual payments will be based on type price, with costs of repair, allowances for general wear and tear, and conversion costs credited in equal amounts over the period of lease or installment purchase. Payments will be spread over a period up to five years.

The Payne report estimated the use value of a C-47 completely overhauled, modified and refurbished at approximately \$93,000. It recommended that the "as is" price in the United States be a price of \$100,000 when a "reasonable estimate" of overhaul, modification and refurbishing was taken into consideration. Industry sources believe the SWPA formula will result in a generally higher cost to purchasers and increase the pressure for corruption of partial production of civilian planes by manufacturers, particularly since the new type planes can be converted at only 90 percent of the cost of increased weights.

## Krug Names Small For Conversion Job

Reorganization of top-side War Production Board, looking toward handling of reconversion problems, has been completed by acting chairman J. A. Krug with appointment of John D. Clark as executive officer in the Office of the Chairman.

Krug noted that he previously had named Arthur E. Barker as chief of staff and chief of the War Production Board as chief of operations steps in streamlining the WPR organization to deal with reconversion.

**Four-Man Team**—It was explained that there are now in the Office of the Chairman the top officials who, with the chairman, will work as a team in handling various problems with WPR vice-chairmen. The chief of staff will develop and coordinate various policies under Krug's direction;

the chief of operations will be in charge of WPR operating activities; the executive officer will coordinate both of these men and work with other WPR officials.

Previously Krug announced appointment of Harold Rosenheim as deputy vice-chairman for operations, succeeding Wade T. Childers. Rosenheim has been with WPR since November, 1942. He was appointed director of the Controlled Materials Plan Division in December of that year and became director of the Production Controls Bureau in April of last year. In his new post he will assist Reichelder.

## Details of SWPA Pricing Policy

Although the pricing policy of the Surplus War Property Administration has been downgraded of aircraft proposed by the Payne Surplus Aircraft Advisory Subcommittee into categories, the general outline of that report is followed.

Here are the details of the price policy:

**Class A**—Tactical aircraft are broken down into (Group 1) planes damaged and built to perform bombing, combat, reconnaissance and other tactical military missions and (Group 2) basic and advanced trainers. Class A aircraft convertible to Class B (transport) types will be priced under Class B formulas. Those said should move at prices established by governmental negotiation. Planes in this class sold for private or individual

flight purposes in the United States will be sold at prices not lower than the estimated sales value of salvagable component parts plus the estimated scrap value of unsalvageable residues.

**Class B**—See accompanying article.

**Class C**—Personal-type aircraft are placed in three groups. In Group 1 are allocated single and multi-engine aircraft primarily suitable for private flying. Group 2 comprises private training type aircraft. Group 3 consists of miscellaneous types, such as gliders and rotary wing aircraft which cannot be classified in any other category. Planes in Class C will be offered in competitive bidding "where in and as is" or at reduced prices under the same procedure now followed. Group 1 planes in the United States offered for sale outside the continental United States may be sold at prices approximating those being received in the United States for similar aircraft in comparable condition. Group 1 aircraft located outside the United States may be sold for competitive bidding or sold at prices approximating those received in the United States. Group 2 aircraft may be offered for competitive bidding or at undermarket prices established from time to time and appropriately adjusted to reflect the relative condition of the individual planes. They will not be sold at less than scrap prices.

**Class D**—Aircraft, equipment and component parts, "whenever practicable" will be priced in accordance with normal trade practices and as a general rule will be distributed through normal trade channels.

**Class E**—This is the great reservoir into which virtually all Class A and excess supplies in this class will be channelled. All planes and materials in this class, considered to have little or no commercial value, can be leased, lent, donated or sold at nominal prices by the disposal agencies to non-profit educational institutions for use in the classroom, or by the leasing agencies for rental, or by the disposal agency considered to be authorized by Congress. All aircraft and materials, considered to have some commercial value, may be loaned to non-profit educational in-

stitutions at nominal rentals, or sold for non-aeronautic purposes or scrap at the best prices obtainable under circumstances in that property sold will not again be utilized for flight purposes.

## U. S. Pushes Plans For Air Attaches

Speculation being considered for court posts at strategic locations and agencies, officials disclose.

By SCOTT HERSHEY

State Department's program to appoint civil air attaches to strategically-located foreign capitals for gathering, analyzing and disseminating information has caused some delays.

Both the department's aviation division, headed by Geoffrey Morgan, and aircraft and airline men seem to have worked the specialists in our embassies and legations as soon as feasible.

**Program**—Present plans call for commercial attaches at London, Mexico City, Cairo, Rio de Janeiro, Mexico City and Ottawa and possibly Paris.

Formal appointment of Livingston Settelwright to London (Associated Press, Aug 7) has been made, and that of A. Ogden Pierrot to Madrid is expected shortly.

**Specialists**—The specialized background and experience needed for civil air attaches has made it difficult to secure personnel of suitable rank, since many of those having the necessary knowledge are now in the armed service, although this situation may ease with the end of hostilities in Europe.

It is said at the State Department that there is little these civil air attaches can do at the moment beyond preliminary made-work and preliminary reports. They appear to be some question as to whether all the posts should be filled immediately or to postpone some appointments until men particularly suited for the positions are available.

**Candidates Considered**—Several persons are under consideration for posts and it is said that now appointments will be considered as they are being offered through various governmental channels such as civil service and the Federal Bureau of Investigation.

In addition to aiding aircraft manufacturers and producers of related equipment in the United States for their problems, the al-

## Jet Propulsion Speeds Ahead

Marked progress has been made in jet-propelled aircraft since last January when a joint American-British announcement was made of the existence of such an aircraft. The British and Corp as leader of the American team powered by a Westinghouse unit.

The United States is not using jet-propelled fighter aircraft in combat as yet and Maj Gen L. S. Koser, deputy chief of air staff, said he does not propose to do so until we have sufficient planes. There was no hint as to when The British, on the other hand, have used jet-propelled fighters with success against the German Luftwaffe.

At the same time, the War Department disclosed that Allied

aircraft in the European theater have been in action on several occasions with German jet-propelled fighters. The appearance of these new aircraft was not unexpected and their appearance in conventional characteristics appear to follow closely estimates formed of them.

A-27 and Heinkel Air Force report speed and climb of German jet-planes are high, but that they had shown poor maneuverability and that our aircraft have had satisfactory encounters with them.

Details of the Allied jet aircraft, which are being rapidly developed by the British and the Americans, are still at the secret level, but authoritative sources have indicated considerable progress in the past nine months.

Both will do speed-work in negotiations for landing rights and is working out various agreements with the British and the Americans with increasing frequency in regard to international routes.

## Pierrot to Madrid

A Ogden Pierrot, who has been McDonnell Aircraft representative in Washington, leaves shortly to become United States civil air attaché at Madrid.

Pierrot maintained an agency in Buenos Aires for seven years during which he held about 60 per-

## Lee Heads Menasco

Electron last week of John C. Lee as president of Menasco Manufacturing Co., Burbank, Cal., a Lockheed Aircraft subsidiary, is interpreted as the beginning of a long-range planning program by the company in both aviation and non-aviation products.

Extensive research studies are already underway and the company is utilizing metallurgical and research testing laboratories. Industry sources expect the company to take steps in the jet propulsion field, possibly cooperating with Lockheed Aircraft Corp's future program in this subject.

Lee, who is head of the West Coast public relations firm of Lee and Loomis, has just completed reorganization of the Aeronautical Chamber of Commerce, will take up his new duties shortly. Lee originated and was manager of the American War Production Council, West Coast. He succeeded John E. Royal, who resigned because of ill health. Robert R. Miller remains as executive vice-president.

Menasco has excellent manufacturing facilities for aircraft, aircraft engine, manufacturing and new models monthly deliveries of about \$1,500,000. Booklet is estimated at \$15,000,000, including landing gear shock absorbers for the P-51, P-47, and P-38.



## SWPA Shuffle

The new surplus property legislation is not expected to affect disposal of aircraft and components other than in minor details, although it is possible that the new law may be used to be appended under the legislation could remove overall policy radically.

W. L. Clarkson, Surplus War Property Administrator, is scheduled to leave SWPA this week. It is indicated that many of the top officials of the present SWPA will remain with Mr. Clarkson.

The new bill requires that preference in sale of surplus be given to small business, to veterans, manufacturing, rural areas, schools and other institutions not operated for profit.

## Airborne Troops Use New Waco Glider

Mockup of Fairchild cargo plane also shown to military observers and aviators.

By ALEXANDER MCKURELY

Demonstrating publicly the use of the Army's new Waco CG-13-A glider in Army maneuvers for the first time, approximately 1,400 Airborne Command troops participated in a spectacular combat problem in the Camp Mackall, N. C., area last week.

The maneuvers also included the first tactical demonstration of the glider pickup technique to remove litter-carrying gliders bearing "wounded" men from the combat area.

Four of the big CG-13-A gliders, capable of carrying 12,000 lbs. payload, were used in the glider attack, carrying fully loaded jeeps and trailers with hospital equipment, and landing in a neat pattern close together. The gliders, approximately twice as large in capacity as the standard CG-4A gliders, are equipped with double nosewheel and are fitted with a hydraulic system which operates brakes and lifts the nose of the glider to permit loading. The pressure on the hydraulic system is maintained by a handpump.

Has Autotune Pilot—The big glider is also fitted with an automatic pilot with power supplied by a generator with a small propeller which turns in the airstream. Equipped with doors on both sides, the glider also is fitted with a search bar type camera device for spot-dropping of nerve parcels by parachute or fireball. It may be towed satisfactorily by a standard C-47 transport, although best performance is obtained with a tug plane of greater horsepower. As a troop carrier, it will haul 30 or more men.

Fairchild C-47 Mockup—Newsman attending the maneuvers also inspected a fuselage mockup of the huge new cargo plane, the Fairchild C-47, which recently flew near Baltimore. The C-47 has a 196 foot wingspan and the fuselage is 74 feet long.

The demonstration was marked by the crash of a C-47 transport during the night parachute landings, killing 12.

Final phase of the maneuvers was the four-day supply of a separate battalion from the air, to a theoretical problem in which the



### WRIGHT SWORN IN AS CIVIL AERONAUTICS HEAD:

Gerald Ryan, above left, chief clerk of the Commerce Department, swears in Theodore P. Wright as Civil Aeronautics Administrator in the office of Secretary of Commerce Jesse Jones. Left to right: Secretary Jones, Charles I. Starnes, deputy administrator, W. A. M. Burdick, assistant Secretary of Commerce, Mr. Wright, L. Welch Pogue, CAB chairman, Harlan Brinch, Jack Lee, and Oswald Ryan, all members of the Board. Vice-chairman of the Board, Dr. Edward P. Warner, was not of town. Wright has taken over his new duties as Administrator in room 5486A of the Commerce Department Building, Washington.



battalion was cut off from ground supplies and food supplies were dropped in cargo bundles from B-27 Flying Fortresses used as supply carriers.

### Study New Office To Replace APB

Program for unit to be over WFB Aircraft Division is reported being drafted for presentation to Krug, probably this week.

Projected changes in the organizational set-up of the War Production Board under acting director J. A. Krug probably will affect aircraft in plans to fill the gap resulting from the abolition of the Aircraft Production Board at the time Charles E. Wilson left WFB.

A plan is being drawn up for submission to Krug and may go to him this week to set up an Office of Aircraft to be headed presently

by one of WFB's vice-chairmen. The plan, still in the making, calls for the office to be over a WFB aircraft division which would be on the operating level.

Members of Board—On the Board would be the WFB vice-chairman at head and representatives of the Army, Navy and Civil Aeronautics Administration. If this goes through, it will mark the first time CAA has been represented on any of the production boards.

As now planned, the new WFB division will incorporate the staffs of the APB permit branch, which allocates materials to civilian aircraft and airlines, and the project rating branch which deals with materials for military aircraft, machine tools, and plants and facilities.

New Agency Likely—When the Aircraft Production Board was abolished by a vote of its own members, then current plans called for the Joint Aircraft Committee



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The Collins Autotune system consists of a number of Autotune heads, all driven by a single electric motor, each quickly and simultaneously repositioning a separate and non-interrelated tuning shaft to new settings chosen in

advance by the operator. At the touch of a button or flip of a dial, the Collins transmitter or receiver is thus completely and exactly tuned to the wanted channel in a matter of seconds.

Collins communications equipment, Autotune controlled, was adopted by American Airlines, Braniff Airways, Tropical Radio Telegraph Co. and others long before the war. Reliability has been demonstrated through the years under all service conditions.

The Collins transmitter design and the Autotune have proved so advantageous to the Armed Services that military authorities have requested other large companies, in addition to Collins, to build them. The Collins Radio Company, Cedar Rapids, Iowa.



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to take over functions of the Board. It was pointed out at that time, that aircraft production is generally scheduled, that schedules are being set for the most part and that the industry itself well demonstrated its ability to meet the aircraft requirements of the armed services.

It is understood, however, that King and other WPB top officials feel that some agency should be set up to take over APB functions. These functions, including the granting of materials to manufacturers for experimental post-war airplanes, are now being carried out by the Joint Aircraft Committee, although some officials contend the committee is not authorized to act in such cases. It is barely possible that subordinate materials may be supplied at JAC's activities are replaced by the proposed new WPB division.

## ACCA Brochure Asks Small Port Program

20-page promotional booklet urges communities to "Put Your Town on the Air Map."

Expansion of the country's small-airport system, unanimously regarded as No. 1 requirement for success of personal aviation and the lightplane industry, was advanced a long step last week when the Aeronautical Chamber of Commerce released a booklet titled "Put Your Town on the Air Map" with elaborate information for municipal officials on construction of low-cost flight areas.

The 20-page illustrated brochure, of which the first printing was 20,000, was announced by Joseph T. Gensert, chairman of the Personal Aircraft Council, Aero Chamber unit whose efforts during the past year have been directed for the publication and for use in promotional and technical leadership of the "airport" system project. John E. P. Morgan is manager of the C. C. P.

**Private Facilities Likely**—Some state aviation commissions already are organizing airport projects with their municipalities. Iowa is reported to have set up at least 11 projects. Other states had merely one.

A major obstacle is the tendency on the part of local authorities to wait for enactment of a Congressional measure setting up a national Federal airport program, which undoubtedly will involve funds with municipal, county and

state money for construction of airports of all classes.

Both the Council, and the Civil Aeronautics Authority (which is sponsoring the Federal and bill) emphatically advise local officials to go ahead with the airport program, and depend on Congress to write a retroactive funding provision into the airport expansion law.

**20,000 Units "Only a Beginning"**—They point out, too, that the initially-proposed airports system of perhaps 20,000 units, plus "air harbors" and "airports," is only a beginning. In many cases, towns and states can finance a number of landing areas entirely on their own, and still take advantage of all available Federal aid for additional units.

Eight of the 48 states still do not have aviation commissions. Ten of the remaining 46 have aviation authorities which are branches of other state agencies, leaving 34 with commissions (or organizations known by some other name) organized to handle aviation problems. The Chamber's Personal Aircraft Council hopes that all states soon will have an authority manned by qualified officials and managers.

**Private Facilities Likely**—It is probable, however, any spokesman for the Council, that the airport program will go beyond the sponsorship of states, counties, and cities of municipalities. There appears to be no reason why any owner of suitable land, located near any place where flyers might want to go, cannot establish flight facilities thereon, in accordance with regulations, and operate an airport, air stop or air harbor for profit.

Communities will not commit themselves in forecasts, but they believe it possible such privately-owned fields may spring up in large numbers. It goes without saying that some fields will be established, especially in resort areas, and some communities will grow around the airports.

Some industries, as well as private individuals, probably will provide airports in connection with business promotion. Several oil companies, including Gulf, Shell and Standard, are already well along with plans to provide air stops on land adjacent to suburban and highway service stations. In many regions the need can be well at least met. It is possible that service stations throughout the country will handle a large

portion of the airport, or roadside flight stop requirement.

Mr. Gensert during his press conference estimated there would be 20,000 personal airports in the New York City area within five years. There are 16,000 communities in the United States, he said, and only about 3,500 regular landing fields. Each airport, in Mr. Gensert's opinion, will employ 20 to 25 persons, many of them returned air force pilots, mechanics and service men. Airports having two 2,000-foot runways 300 feet wide can be built for as little as \$25,000. Spokesmen for the Council said that many privately financed airports may have natural and surface, simple service buildings, and cost very little.

## CAA Port Program Ready in Two Weeks

Plans, for billion dollar union-wide chain of airports, sponsored by House, being completed far ahead of six months' schedule.

CAA's recommendations for a billion dollar airport building program are expected to be completed within ten days to two weeks, in response to House Resolution No. 986 calling for the proposed program. Possibly because of increasing pressure from all groups in the aviation industry, the report is being completed considerably in advance of the six-month deadline when the resolution was voted last June.

While the recess of Congress will prevent immediate consideration of the program, the CAA report will be ready for Congressional action when the House reconvenes Nov. 18.

**Territorial Ports**—It is understood that, although the House has authorized later to call for an additional airport program for U. S. territories outside the continental United States, the report now being shaped will not contain provisions for territorial airports.

The program as previously reported would call for 6,000 airports within the United States. William A. M. Barker, Assistant Secretary of Commerce, has cited as examples of the distribution by states, the industrial state of Massachusetts, which now has 84 airports, and would have 96 under the CAA plan, and the larger farm state of Minnesota, which now has 43 airports and would have 156, mostly of smaller types.



The challenge of power problems is vitalizing to those who have pioneered before. Back in 1910 Solar challenged the method which permitted exhaust gases from airplane engines to shoot directly out through short tubes. The method was dangerous as pilots because of carbon monoxide. Night flying was hazardous because vision was obscured by a bang of fire from the exhaust. Yet the gases were thought as he too hot to handle in any other way until Solar's successful stainless steel manifold launched a new industry.

Solar has led this branch of the airplane industry for over 25 years. It will continue to make manifolds for replacement of existing equipment. But Solar is going pioneering again... preparing to lead in the design and manufacture of manifolds for airplanes not yet conceived... to develop other products for airplane designs of tomorrow.

Solar's three plants are operating at full capacity on war production, but the management is always ready to consult with aircraft and engine manufacturers about proposed equipment for postwar planes. Address "Management".



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## Gas Turbine Plant May Bring Radical Changes in Plane Design

Compactness, efficiency, lightweight and convenient control of motor offer variety of aircraft applications.

The apparent efficiencies of gas turbine plants in combination with their compactness and lightweight, offer a variety of aircraft applications, some or all of which we may expect to be tried before long.

Extremely interesting possibilities of design are demonstrable in the case of large, multi-engine aircraft where a central gas generation plant can supply a number of turbines, each driving propellers. Combination gas drives the generator located, say in the fuselage, can be ducted to compact turbines "burned" in the wings. The convenient contours of the turbines would permit complete envelopment of the power plants, considerably reducing drag. Suitable valving would permit considerable flexibility in the system as a whole, providing the simplest kind of regulation for optimum cruising efficiencies and incidental ground directional control.

► **Location**—Locating the combustion gas generators centrally would permit servicing in flight and altogether reduce maintenance problems and costs. The gas ducts also might be utilized for wing heating for ice control.

Open, thermally cycle turbine plants (driven by combustion gas) might be utilized both for shaft drive and jet propulsion. Appreciable jet effect is already being obtained from reciprocating engine installations in aircraft through the use of suitably designed exhaust nozzles. At least sufficient thrust is being secured to overcome drag caused by necessary engine protrusions such as air scoops. If the turbine is being used primarily for shaft drive, however, a somewhat lesser jet effect could be expected due to the more complete expansion of gases at the turbine.

► **Air Compressor Drive**—Most current jet propulsion engines use a gas turbine to drive the air compressor. Some of the energy in the combustion gases directed toward the thrust nozzle is given up to the turbine for this purpose. In essence, therefore, gas turbines for jet engines and those designed for propeller shaft drive are inherently

ly dissimilar. In the former, the turbine's sole function is to drive the compressor and it should absorb the least possible energy from the exhaust gases to do it. In the propeller arrangement, the turbine's main function is to deliver mechanical power to the shaft and the least possible energy should be given up to drive the air compressor. In other words, the turbine is auxiliary to the compressor in the jet engine, and the reverse is true in the propeller drive arrangement.

The lightness and compactness of the turbine make it ideal for the jet engine, and the application of the turbine principle to both jet and propeller drive schemes opens the way to "constant efficiency" power arrangements for aircraft irrespective of altitude. For example, a "four-engine" aircraft might have two turbine-propeller plants and two jet plants installed in the wings, utilizing each pair at altitudes where each provides most efficient propulsion. In certain altitudes, where propellers lose their efficiency, the blades could be feathered to reduce drag and the jet engines cut in.

► **Combination Possible**—It is already obvious that a single turbine plant cannot practically be used to supply both jet thrust and shaft energy. It should not be overlooked, however, that the reciprocating engine might possibly be the key to such a design combination. In last week's Aviation News, mention was made of a development where the efflux from a highly supercharged diesel engine was utilized to drive a turbine. The air compressor is driven by a relatively light linkage with the reciprocating engine and maximum energy was contained in the exhaust gases. It is not inconceivable that the plant could be arranged so that the combustion gases could be utilized for either supplying energy to the turbine for propeller shaft drive, or, bypassing the turbine completely, to provide jet thrust energy. The engine-compressor combination is completely independent of the thrust force



EXECUTIVE TO ACCA:

John K. Boyle, whose appointment as director of development services of the Aeronautical Chamber of Commerce was announced in Aviation News, Sept. 28. Mr. Boyle joins the Chamber after wide experience in the aviation industry. He was formerly executive adviser to the vice-president and general manager of Lockheed Aircraft Corp., and chairman of the contract termination committee.

mechanisms and the output energy could be shifted from one to the other while the craft is in flight.

Not the least significant implication of these varieties of power plants is that heretofore engines can be tailored to suit the aircraft design, rather than have the design limited to power plant dictates. This will mean a veritable "field day" for aircraft designers and an entirely radical and progressive aviation era is in the offing.

### MCA Net Up Sharply

Mid-Continent Airlines' net earnings for the first seven months of 1944 totaled \$223,896 after taxes, compared with \$152,544 for the 1943 period.

A. W. Miller, president, and the increase resulted from higher equipment utilization, heavy wartime traffic, and return of two Lockheed Lodestars from Army service. Mid-Continent's passenger load factor was up to 81.25 percent in July, 1944, compared with 66.99 percent for July, 1943.

► **July Not Galas**—Net profits for July, 1944, were \$38,665, nearly triple the \$13,947 earned in July, 1943.

Three DC-3's acquired in July will be in service on Mid-Continent's routes in late October.

# Phillips

has recently completed the first and only U.S. plant

to produce **CENSORED** a new secret component of 100-plus octane aviation gasoline

Phillips  
AVIATION GASOLINE

A major supplier of 100 octane gasoline to the Army, Navy, and United Nations air forces





## So. American Credit Problem for Industry

Fairchild official finds Latin sector U. S. manufacturers' cash-on-barrelhead policy.

At a time when many aircraft executives and other business leaders in the United States are eyeing South American post-war markets, Jerome G. Sanders, assistant vice-president of Fairchild Camera & Instrument Co., who has just returned from a month-long pan-American consultation, reports a definite resentment against United States manufacturers and export organizations.

While this is contrary to viewpoints of some other businessmen, Sanders says the situation exists and that it is due to a pro-war practice of demanding "cash on the barrelhead" from South Americans before merchandise left the United States.

**Critic Credit Problems**—During his stay in South America, Sanders attended a consultation on geography and cartography in Rio de Janeiro where he talked in both official representative and businessman of every South and Central American nation.

Sanders hopes that if the United States hopes to get and hold foreign trade "we must extend credit up to six months or a year if necessary, even though our customers have the money to pay and we explained that the Latin-American commission operates under an entirely different philosophy in commerce" and considers it a reflection against his integrity if he re-



### PLANE STOCKS IDAHO LAKE WITH TROUT:

This plane over on Idaho mountain lake is stocking it with some 25,000 rainbow and eastern brook fingerling trout in a project of Idaho's Park and Game Department to plant about 200,000 trout by air in depleted lakes in the lofty McCall range.

fuse to extend him credit."

He believes there has been some antipathy thinking in foreign trade in the United States and emphasizes that a common-sense credit policy toward Latin-American businessmen will do more than any other one thing toward insuring a steady growth in hemisphere markets after the war.

United States were not specified and U. S. sources declined comment. Canadian planes, formed across U. S. with U. S. permission, were Fleetwings trainers.

### Lockheed Negotiates 175 Million V Loan

Lockheed Aircraft is negotiating a Regulation V credit of \$175,000,000 with 18 commercial banks to meet current operating and termination needs.

C. A. Barker, Jr., vice-president and treasurer, and the commitment he would be co-chair of one percent with a 30 percent guarantee. All 18 of the banks involved in the credit have been participants in previous Lockheed loans.

**Participants**—They are: Anglo California National Bank, San Francisco; Bank of America National Trust and Savings Association, Los Angeles; Bank of the Manhattan Co., New York; Bankers Trust Co., New York; California Bank, Los Angeles; Central Haverhill Bank and Trust Co., New York; Chase National Bank, New York; Continental Illinois National Bank and Trust Co., Chicago; First National Bank of Boston; General Trust Co., Philadelphia; J. P. Morgan and Co., Inc., New York; The New York Trust Co., Philadelphia; National Bank of Philadelphia; Security-First National Bank of Los Angeles and the Union Trust Co., Pittsburgh.

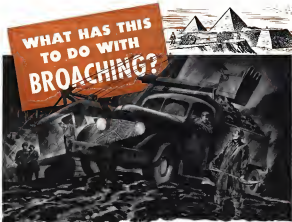
### Mexico Gets Planes

More than 500 planes have been added to the Mexican Air Force within the past few weeks with the delivery of 100 planes from the United States and 100 from Canada. Types purchased from the



### CORSAIR IN BRITISH BATTLE DRESS:

A familiar warplane, the Vought Corsair, is seen here in transformer garb, that of the Royal Navy. This fighter plane is now being produced for the Royal Navy by Goodyear Aircraft and is shown here on the Alcon flight runway.



**THE** Alcon Highway, buried through hitherto impenetrable forests, across mountains, routing torrents and treacherous muskogs . . . all conquered by man and his machines . . . machines that owe, in great measure, their very existence to the elementary principle of the broach. Used in ancient Egypt it enabled the engineers of the Pharaohs to move into position by sheer human effort the massive blocks of stone that formed the Pyramids. This same principle, upon development became the worm gear—that efficient instrument of power transmission—used in nearly every field of power application . . . without which our machine built civilization might well collapse.

**EVEN** as the principle of the inclined plane has influenced daily living in the widespread use of the worm gear, so also has broaching, developed through successive phases from a crude beginning. Today, thousands of parts are made quicker, cheaper and better by modern applications of the broaching principle. In keeping with the trends of the past, even greater developments are in store for the world of tomorrow.



By driving steel balls, and later, crude drifts through the heated gut . . . clever builders broached the hubs of the famed covered wagons.

**LAPOINTE** Machine Tool Company  
ROCKFORD, MASSACHUSETTS, U. S. A.  
THE WORLD'S LARGEST AND LARGEST MANUFACTURERS OF BROACHES AND BROACHING MACHINES



#### NEW CORSAIR SPEEDS AERIAL PHOTOGRAPHY:

An improved method of taking aerial photographs from a Corsair fighter by a Marine squadron in the Pacific now permits pilots to study photographic records of their maneuvers within an hour after landing. Shown here is the newly-developed K-21 camera being set in a special recess in the belly of a Corsair.

#### Plane Noise Seen As Port Problem

Burden says manufacturers should act to cut noise of exhaust and propellers.

A challenge to aircraft manufacturers to solve the problem of exhaust and propeller noise was issued by Assistant Secretary of Commerce William A. M. Burden, speaking before the National Association of Real Estate Boards in Washington.

In discussing the relation between airport development and land values, Burden and property holders were usually opposed to airport construction in residential areas because of plane noises. He expressed confidence that the aircraft manufacturing industry would soon refine these noises constitute one of the biggest barriers to mass plane sales and "would tackle the problem in their usual aggressive way" to eliminate the difficulty.

**► Cites Objection to Port**—He cited a recent instance as the Washington metropolitan district where property owners successfully blocked construction of an airport because of objections to plane noise, and predicted that this

would happen with increasing frequency until excessive noise was eliminated.

Burden drew parallels indicating the way in which various forms of transportation have increased land values—the ship near waterfronts, railroads near terminals and along rights-of-way, and the automobile in residential sections and along highways—and predicted that with intelligent planning the value of land adjacent to airports could similarly be increased.

#### Allison Cuts Hours

Allison Division of General Motors at Indianapolis has started a 48-hour-week schedule instead of 40 hours and changed operations from three to two shifts as a means of meeting uncertainties which face producers of military aviation supplies.

Allison, manufacturers of liquid-cooled aircraft engines, among other products, reports that during recent months there have been practical reductions in schedules for certain of their products while others are approaching a mass production curve. It was explained by E. H. Newell, general manager, that it was impossible to measure

the exact impact of the increasing programs on manpower requirements and consequently it was decided to operate fewer hours rather than to release personnel which might be needed later.

#### Tax-Free Period For Inventors Asked

A three-year tax-free incentive period to be granted to the developer or owner of a new product resulting from research or engineering effort and expenditure as an incentive to stimulate use of "research risk dollars" in new and necessary peacetime product development is proposed by A. A. Kueher, director of research and chairman of the long-range planning committee of Bendix Aviation Corp.

**► Tax Problem**—Kueher describes his plan as a research "incentive" approach to the tax problem and contends present income taxes, based on the calendar year, deter individuals and industry from taking financial risks inherent in long-range development of new products.

He believes his proposal, if it can be worked out, will provide tax revenues stemming from resultant industrial expansion which will far exceed the temporary loss of revenue.

#### Convair Retools

Re-tooling of the Nashville plant of Consolidated Vultee for production of P-34 Lightning fighters is moving ahead with the 29-awards of the last A-26 Vengeance dive-bomber which will go into the service of the Brazilian Air Force.

Not including Vengeance modifications, a total of 512 airplanes ranging from Boeing's B-29 to Lockheed's P-38 have been modified at the Nashville plant during preparations for P-34 production.

**► Operating in Far East**—Originally conceived as a result of negotiations with the French government, the Vengeance, engineered at the Vultee Field Division, was taken over by the British Air Commission in July, 1940, after the fall of France. These planes, built both in Nashville and under contract by Northrop, has been seeing extensive service in the China-Burma-India theater as well as in the Southwest Pacific.



By 1919, despite the turmoil of demobilization and reconversion, Wright Aeronautical, a direct descendant of the original Wright Company, began specialized development of aircraft engines. In the next 25 years, Wright research became a fountain-head of development which gave the world the air-cooled radial engine—the engine which brought world air commerce into being and gave power to Allied Air Forces today. Now problems of re-equipment again loomed ahead. But in 1933, Wright stands ready, with new skill and facilities born of war, to provide power leadership in the Air Age of tomorrow.

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# "Braniff Airways Estimates Each Pound Saved Worth \$108 in 1943"

**SAYS C. G. ADAMS,**  
Secretary-Treasurer, Braniff Airways, Inc.

"It might be the principal interest of those concerned with the revenue to be derived from transportation by air, since power is required to hold up weight in addition to providing motive force."

"Each pound saved to the weight of the plane permits the transportation of another pound of revenue-producing cargo."

"Braniff Airways estimates that \$108 in revenue would have been derived from the transportation of one additional pound of cargo in 1943."

"Braniff Airways estimates that \$108 in revenue would have been derived from the transportation of one additional pound of cargo in 1943."



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## BOOTS STEEL ANCHOR NUT



(WTS 18-30) This all-metal, self-locking nut is **WELL** lighter than a comparable steel nut.

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Boots Aircraft Nut Corporation, General Offices, New Canaan, Conn., Page 1

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## PRIVATE FLYING

## Urge Lightplane Manufacturers To Ask Permits for Civil Output

Demand for small craft will remain brisk even after best surplus supply is sold, Washington officials believe.

The War Production Board believes that light plane manufacturers should be converted to civilian production as soon as possible and unofficially is urging companies to request permission to re-enter the aviation market.

Speed of surplus sales in this category and a survey of future releases of Army planes to surplus indicated the need. Thus far, only four or five manufacturers have applied for permission under L-46, which clears the way for production where it appears advisable or necessary.

◆ **Urges Action**—WPA officials are recommending that Order 1318, which requires evidence of sales to essential buyers before materials are allocated, be abolished for light plane makers. But whether or not it is wiped out, WPA is in the amiable position of pressing companies to file under L-46 to clear the way for an early resumption of popular-type civilian plane manufacture.

◆ **Applications** of companies that have already applied are being processed and await only the designation of a new aircraft policy based for completion.

◆ **Equipment Included**—Engines, propeller and equipment companies are covered in the requests for applications to resume civilian production.

Two reasons impel WPA to ask for permission to resume civilian light plane production. One is that plane shortages may well be soon evident. The second is that lifting of materials restrictions to follow V-E Day may not include all those needed by the plane manufacturers, which means that the L-46 permission will be needed to obtain the items.

The surplus lightplane picture is murky.

◆ **More than 3,000** of the 3,400 CAA-WPA planes have now been sold.

◆ **Army light trainers** released to

surplus and readily usable by civilians will total less than 2,000.

◆ **Few, if any, liaison planes** in the same category will be available for some months to come and then many of these available may not be "good buys."

◆ **Plans of this type** overseas will not be worth bringing back.

◆ **No estimate is available** on the number of Army trainers in the light class still in service, but it is not anticipated they would affect the market.

◆ **Even though Order 1318** is not rescinded, WPA indicates it does not believe that manufacturers will have any difficulty showing sales orders that will be quickly approved. The debate in the agency over rescinding of the order is over benefits to be derived from faster reconstruction in counterbalanced against the possibility that some planes will be built that aren't vitally needed.

## CAA to Ration 73-80 Octane Gas

Effective Nov. 1, Civil Aeronautics Administration will take over complete control of rationing of 73 and 80-octane aviation gasoline for private airplanes from Office of Price Administration, as directed by War Production Board. Until Nov. 1, CAA and OPA will exercise control "co-extensively." Outstanding airplane gasoline rations may be used until Nov. 1, are invalid after that date.

Method of operation under the new arrangement was reported in detail in AVIATION NEWS, Sept. 4, in a forecast of the transfer, which has been urged by many aviation organizations.

◆ **Supervision**—CAA Safety Regulation inspectors, who regularly visit all airports, will supervise under a plan of allotments to airport operators who will act as distributors on a basis of essential uses. These are restricted to pilot training, transportation of persons and cargo, maintenance of pilot skill and aircraft and engine airworthiness, and non-scheduled commercial flying, and specifically prohibit use for "barstomping," sightseeing, pleasure flights and similar non-essential activities."

Under new setup, CAA replaces WPA's Office of Civilian Requirements in task of making plans for 73- and 80-octane aviation gasoline.



## ORANGEBURG CLAIMS PRIVATE PLANE LEAD

For a municipality in size (13,000), Orangeburg, S. C., claims its Jennings Municipal Airport has more private plane owners than any other in the country. There are 21 airplanes, mostly privately owned, permanently based at the airport, which has six individual tie hangars, besides a large aircraft hangar, and a small operations office. The airport is operated by Beverly Howard's Hawthorne organization. It provides a 33-acre field less than a mile and a half from the center of town.

## High School Flying Urged by Educators

Four hours of flight in a two-control plane has been recommended for every boy and girl in high school aviation classes in reports to local schools by state education departments of California, Colorado, Connecticut, Illinois, Pennsylvania and Wisconsin.

All six states propose an education program for the first 12 grades, with some state plans including junior college and college as well.

**Colorado Proposal**—Colorado recommends a separate Special Aviation course for junior high schools dealing with political, social and economic implications of the Air Age.

Both Pennsylvania and Connecticut recommended an elective aviation science course for high school juniors and seniors, as adjusted that at least 75 per cent of all juniors and seniors may take the course.

Illinois plans an extensive program of aviation industrial arts and vocational courses.

California recommends carrying the aviation studies into junior college.

Wisconsin's plan, first to be completed and published, emphasizes the proposed laboratory flight experience in its high school aviation course.

**Other Plans**—Beades agreeing on the flight experience, all six state departments agree:

• Air Age materials should be included in all study courses at all grade levels to introduce and enrich the curriculum.

• Regular aviation courses in senior high schools and colleges should be further developed as permanent parts of post-war science and social curricula.

• State and local educational systems must assume complete responsibility for making aviation education an integral part of their curricula.

Cooperating in the spreading state plans is the Aviation Education Service of CAA, which, however, points out that there is no implication that federal financial aid will be available for any of the programs. The service will make available state reports on aviation education planning to persons writing to CAA, Aviation Education Service, Reference A-4, Department of Commerce Building, Washington, D.C.



### CADET SCHAEFER WINS HONOR AWARD:

At Lakeland, Fla., Army Aviation Cadet Robert J. Schaefer, son of J. Earl Schaefer, vice-president of Boeing Wichita division, won the honor award of his production class, presented by Louis Thomas, commencement speaker. Also shown are Albert F. Ludwick, owner of Lakeland School of Aeronautics, Lakeland, and Maj. C. E. Flaherty, commanding officer in charge of the school's military training.

## Detroit May Expand Nearby Air Base

Expansion of Romulus, Mich., Army Air Base, to a huge airport serving the Detroit area commercially, is projected by Wayne County, Mich., officials, if the army cancels its 20-year lease on the former Wayne County field, at the end of the war. It is assumed that the 3rd Ferrying Group, Air Transport Command, now based at Romulus, probably would be transferred to Selfridge Field, Mt. Clemens, if the lease is canceled.

**Expansion Plans**—Lefroy C. Smith, Wayne County Road Commission chief engineer, has disclosed plans to increase the field from its present 1,500 acres to 3,000 acres by condemning and purchasing additional land. The addition would make possible construction of three 10,000-foot concrete runways, allowing use of the field in any wind.

Completion of the Willow Run expansion, from Detroit to Romulus, will put this airport, although 18 miles away, within 25 minutes of Detroit city hall. Wayne County and the federal government have shared equally in expenditure of approximately \$5,000,000 on the airport and its improvements. Additional land purchases are expected to cost about \$685,000.

## Direction Indicator

A new direct reading magnetic direction indicator compass particularly adapted to private aircraft and gliders has been developed by Aqualight Corp., of Burbank, Calif., which reports the

instrument is the smallest and lightest of its kind.

The azimuth pointer rotates in front of a fixed, standard one-and-seven-eighths-inch luminous dial, graduated every five degrees and combines a short time of setup or period with a low value of over-swing and a high lateral dynamic stability.

The mechanism is permanently mounted in rugged fluid Total weight is six ounces.

## Glendale Port Plans

Post-war plans for General Central air terminal, Glendale, Calif., recently purchased by Cal-Aero Academy, as disclosed by Maj. C. C. Maskey, president, centerplate feeder line operations as terminals for various lines, private and commercial flying, overhaul and repair of engines and airframes, and industrial and manufacturing activities by aviation enterprises. The airport was recently reopened for civilian point-to-point flying by the Army and CAA after being used previously as a base for fighter planes.

Curtis-Wright Technical institute, located on the airport, one of the oldest and largest Civilian approved technical aviation schools in the country, was included in the purchase. The airport is also the site of the Cal-Aero and Mira Loma flight academies and of Aircraft Industries Co., an engine overhaul, servicing, organization. Nearing completion at the airport is an engine test stand, described as the largest soundproof test stand on the West Coast capable of testing "ratings of the highest horsepower ratings."



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## Hydraulic LIVE-LINE Pump

Makes Controlled Energy Available Instantly

Simmonds is now the permanent representative and licensee in the U. S. A. of Dowty Equipment, Ltd., of England, one of the world's leading developers of hydraulic equipment. The Simmonds-Dowty Live-Line Pump is the acknowledged standard of hydraulic power for thousands of British aircraft and for a number of recent American installations, both aircraft and industrial.

So-called because it maintains constant pressure in the hydraulic system, the Live-Line Pump provides (1) instantaneous response, (2) stability of pressure, and (3) flexible speed control... plus simplification of the hydraulic system. It is equally suited for restoring landing gear, actuating the cutting tool of a lathe, or controlling a bulldozer.

American made Simmonds-Dowty Live-Line Pumps are available now in quantity. Literature upon request.

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Aircraft Engine Controls • Spark Plugs • Fuel-Pull Controls • Hydraulic Pumps • Hydraulic Actuators • Checkvalves • Ballcocks • Reversers and Claps • Specialized Drums

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## Manufacturing Costs Of Planes Analyzed

Paper offered at SAE meeting in Los Angeles discusses system of determining lightplane production extents.

Airplane design, stress and weight analyses, plant expansion, sub-contracting, and particularly production scheduling, have been intensively developed during the war. But there has been little time or disposition to concentrate on manufacturing cost analysis. Even before the war, not much was learned about costs in terms of line production, because then most aircraft builders was handicraft.

A contribution toward closing this gap is offered by A. G. Thompson, chief engineer, and F. S. Macomber, industrial engineer, of Stinson Division, Consolidated Vultee Aircraft, in a paper titled "Cool Planning the Post-War Small Airplane," before the National Aircraft Engineering and Production Meeting, Society of Automotive Engineers, at Los Angeles last week.

**Specialized Group Urged**—The two engineers propose that the manufacturer organize a specialized group, consisting of design engineers, industrial engineers, tooling and factory personnel, which will assume the responsibility of selecting by society and detailed methods, the most economical among several proposed designs. They will act as consultants with design engineers, and will analyze

### Buyers' Preference

A total of 1875 replies to Helios Aircraft Corp.'s survey a preference of prospective general plane buyers indicate the majority want a four-place low-wing biplane with replace float attachments, covered with a single aluminum covering of 139 to 190 hp and costing \$1,500 to \$1,800.

They ask that the plane be of all-metal construction, have a cruising range of 125 to 150 and a top speed of 145 to 175 mph. They also call for a 500-mile cruising range, fewer tri-cycle landing gear heavily, and want approximately 200 pounds luggage capacity.

Company officials commented that the main problem posed by the survey was how to build a plane to these requirements within the cost range.

The cost of each competing design, compare estimated cost per pound with similar parts made in the past, and follow up to see that low cost ideas are used through tooling and manufacturing phases of production.

The plan prescribes previous agreement on the exterior contours and general arrangement of the body, wings, tail surfaces, and landing gear, after wind tunnel tests and flights of prototypes. In other words, a design favorable in sales and performance characteristics is turned into the lowest possible cost job.

**Cost Factors Broken Down**—To take some of the mystery out of the term "cost," the paper breaks it down in two groups of direct and indirect factors that make up the selling price of a typical light airplane:

Direct Cost	Typical Light Plane	% of Total
Raw Material	\$ 250.00	28.0
Payroll, Parts	150.00	17.0
Overhead	400.00	45.0
Tooling	75.00	8.5
Engineering	55.00	6.3
Total	\$1,125.00	89.8
Indirect Cost		
Factory Overhead	\$ 250.00	11.5
Administrative G & A	50.00	4.0
Profit		
Basic 15% Cost	\$1,493.75	
Plus 20% Profit	298.75	24.0
Total	\$1,792.50	100.0
Gross & Net Cost	400.00	35.0
Selling Price	\$1,792.50	100.0

The great portion of indirect costs, the author says, are directly proportional to direct costs, each saving in labor, material, or tools creates a further saving in overhead per ship, and reduces the profits and commissions which must be made on each. Roughly, a dollar saved in direct cost means two dollars off the selling price. The place to start, say the collaborating engineers, is on the basic cost of material, labor, and loading, and then the 30% premium they tell how to do it, step by step, with detailed data and extensive tabulations.

In their conclusion, Teague and Macomber warn that, even though their cost plan is followed, the saving can still be thrown away by common blunders.

## New Field Dedicated

A new \$1,218,000 airfield was dedicated at Deer Park, Wash. by J. Mackie, chief of airways engineering branch of the 7th regional CAA office at Seattle, presented the installation to the town. The field has three paved runways, each 8,100 feet long and 150 feet wide.

## 28 Personal Plane Companies Listed

A group of 25 personal aircraft builders is often mentioned but seldom listed in print. The following includes companies who previously built personal airplanes and companies who either plan to build them or think they might. Representations of some of these companies have not been published. In general, this list, compiled by the Personal Aircraft Council of the Aeronautical Chamber of Commerce, names companies who want to be included. More may be heard from. The first 12 are members of the Council.

Boeing Aircraft Co., Seattle, Wash.  
Boeing Aircraft Co., Seattle, Wash.

General Aircraft Co., Wichita, Kan.  
Consolidated Vultee Aircraft Corp.  
Blount Div., Wichita, Mo.  
Curtis Aircraft Corp., Wichita, Kan.  
Fairchild Aircraft Div., Fairchild En-  
gine & Airplane Corp., Muskegon  
Mich.  
General Aircraft Corp., 6500 Eastern  
Ave., Astoria, L. I., N. Y.  
Grumman Aircraft Engineering Corp.,

Pratt Aircraft Corp., Cedar River, Pa.  
 Lockheed Aircraft Corp., Burbank, Calif.  
 Piper Aircraft Corp., Lock Haven, Pa.  
 Textron Aircraft Division Corp., Wallingford, Conn.  
 Beech Aircraft Corp., Wichita, Kan.  
 Ford Aircraft Corp., Dallas, N. Y.  
 Douglas Aircraft Corp., New Castle

Do  
Cincinnati Aircraft, Inc., Kansas  
City, Mo.  
G & A Aircraft, Inc., William Grove  
Pa.  
Globe Aircraft Corp., Fort Worth  
Texas  
Interspace Aircraft & Engineering  
Corp., 3445 Winstead Blvd., Los An-  
geles, Calif.

Elliott Corp., Inc., Plainville, Conn.  
 Inland, Pa.  
 Langdon Aircraft Corp., West Trenton, N. J.  
 McDonnell Aircraft Corp., St. Louis, Mo.  
 Glenn L. Martin Co., Baltimore, Md.  
 Myers Aircraft Co., Tarrant, Mich.  
 Northrop Aircraft Corp., Minneapolis, Minn.

Republic Aircraft Corp., Fairport  
 State, L. I., N. Y.  
 Ryan Aeronautical Co., San Diego,  
 Calif.  
 Warner Aircraft Co., Tulsa, Okla.  
 Wayne Aircraft Co., Troy, Ohio

• The Bureau of Mines of the Department of Interior has produced a new revised educational motion picture, "Aerplanes—Their Metals, Fuels and Lubricants," dealing with manufacturing and servicing in today's commercial aircraft to provide

speedy and safe transportation to all parts of the Nation. The film, which was produced in cooperation with a large petroleum company, shows behind-the-scenes events at the manufacture and marketing of our fuels.



*Can we fly* AND KEEP OUR FEET ON THE GROUND?

**SURE**, there's something happening *down* here—something that fits thought's slot beyond earth-bound tradition.

As pioneers in the design and production of light planes, Taylorcraft has seen the ease of taking off into realms of wishful thinking and sometimes pure fantasy.

But we at *Aylebrook*, all of us—designers, engineers, production men, and management—believe we must keep our feet on the ground while planning future flying for a postwar America. We believe conservatism and the promise of dream miracles will only harm and impede the future of the light plane industry.

We suggest that all of us—pilots, instructors, fixed here

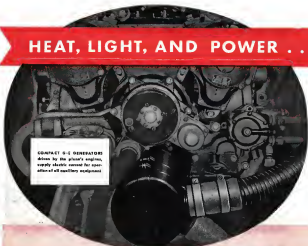
This does not mean that Tytoircraft is standing still, but rather that new Tytoircraft innovations and improvements will be measured by practical considerations.

Our obligation, as we see it, is to perfect as closely as possible, the safe, sure, low-cost plans that will measure up to tomorrow's requirements, without fuss and fanfare or circus balladry.

Tychsenaut is also re-establishing and enlarging its national representation and service facilities. Write us for more details.



# HEAT, LIGHT, AND POWER . . . . *Five miles up!*



CONTACT G-E GENERATORS driven by the plane's engine, supply electric current for operation of all auxiliary equipment

The General Electric d-c power system shown here not only generates electricity—it also regulates the voltage and distributes the current to every part of the plane. From powerful, though small, generators to relays, contactors, and switches, this aircraft power system is designed and engineered as an integrated whole to G-E standards. It is one of several types of G-E control and operating systems—power supply, speed control, automatic pilot, ignition—built for use on United Nations' aircraft.

As ships increase in complexity, the need for automatic operation becomes more pressing—to free air-crow members for more important duties. The resources of General Electric are devoted to the manufacture of such automatic

systems. Systems that automatically position coast flaps and intercomer shutters, synchronize the operation of two or more parts of the ship, control armament—take over flight operations formerly performed by the ship's crew.

The flexibility, reliability, and light weight of these G-E systems are reasons why many designers now make it General Electric when they make it automatic. Then, too, aircraft manufacturers will find that man-hours can be saved by ordering complete electric systems, engineered by one experienced manufacturer. For technical information regarding G-E aircraft systems, and consultation on contemplated projects involving such systems, write to the nearest G-E office. General Electric Company, Schenectady 5, N. Y.

Typical G-E components of the D-C POWER SYSTEM



**GENERATOR:** engine-driven, aluminum-cased "Walrus" but is built as much as an individual generator of the same rating. Provides power for electrically driven equipment on the plane—radio, intercom, motor, engine starting, etc.

**REGULATOR:** controls the voltage of its generator and, in multi-circuit installations, controls the portion of the load supplied by its generator.



**CONTROL SWITCH:** positive pressure the automatic operation of the relay. Double-throw contacts give high current rating.



**RELAY:** automatically connects the generator to the system and disconnects it to the next in line, enabling each action.



**AIRCRAFT MOTORS** and other G-E products, such as radio equipment, pumps, and heaters, are used with the d-c system to help meet the need for better service under conditions.



**PRECISION PRODUCTS  
AND  
ENGINEERED SYSTEMS  
FOR AIRCRAFT**

**BUY  
WAR BONDS**

**GENERAL ELECTRIC**



## COMMENTARY

Expanding Jap Aircraft Industry  
Preparing for Defensive War

Nipponese shift production schedules to place emphasis on new crop of fighter planes rather than bombers in preparation for new avalanche from AAF and Naval Air campaigns.

Just as Germany saw the handwriting on the wall and started to switch from bombers to improved fighters in the winter of 1943-44, so the Japanese, after their disastrous air losses in New Guinea, the Central Solomons and the Gilberts during 1943 have been putting in a tremendous effort to turn out a new crop of fighter planes to defend their inner islands against the avalanche of Army Air Force and Naval air which will soon be launched against it. Some months ago the Office of War Information announced the monthly output of the Japanese aircraft industry as between 1,000 and 1,600 airplanes. Best estimates at present incline to a figure of 1,600 per month or more, divided between the Japanese Army Air Force (JAAF) and Japanese Navy Air Force (JNAF).

No breakdown as to types is available for release, but probably at least 50 to 60 percent are fighters, and the balance divided between bombers, reconnaissance, transport and trainers.

**Jap Air Strength**—Despite heavy losses inflicted by Admiral Halsey's Third Fleet (over 1,800 during the month of September, some 420 in two days in June, east of the Philippines) and several hundreds more of larger range by General Kenney's Far Eastern Air Forces during the past few weeks, the overall air strength should be between 3,000 and 3,500 aircraft, with first-line strength between 1,000 and 3,500. Compared with a few months ago, this air strength, while still scattered over 8 or 10 main areas, is relatively well concentrated, and will become more so as our forces close in on the Philippines from Morotai and Pagan and possibly on the Bataan from the Marianas.

**Several New Models**—There is

increasing evidence that defensively the Jap Air Force is preparing to pack a considerable punch, with a lot of good stuff coming up. And why not? Even a me lack of technical ability, raw materials and labor, coupled with a most ingenious system of bits and pieces which speeds the work over hundreds of facilities. Now two Allied forces have been able to attack the aircraft industry from the air as in the case of Germany.

All this may change within the next few months, but in any case Japan has had a solid two years to expand and improve her aircraft industry based on the lessons she learned in 1942. At least half a dozen new Army and Navy fighters are reported as in production.

**Reorganization**—In the early days of the Pacific war our knowledge of Japanese airplanes was in a great state of confusion. All fighters were just Zeros and all bombers, Mitsubishi. As a matter of fact the great firm of Mitsubishi did turn out the medium bombers now known as Sally, Nell and Betty, the light bombers Lily, and the transport and dive bombers Kate and Val, constituting more than 90 percent of the bomber force of that period. Some models were manufactured by other companies also, however, including Nakazawa and Kawasaki, and system attempting to describe the Japanese types by using the names of the manufacturers, coupled with those such designations as 97, 99 or 10 added to the confusion.

The term Zero (from 66) simply meant that the aircraft had been put into production or service in the year 1940 (Japanese 2600) and Mitsubishi Zero could apply to a Navy fighter, an Army medium bomber, or land-based reconnaissance plane. Discovery of the offi-

cial Jap names was not as much help as might have been expected as they were so cumbersome.

**Adoption of Code Names**—The Air Technical Intelligence Unit of the Southwest Pacific decided to build up its own system which was put into effect in July, 1942, and quickly adopted in Chungking, Pearl Harbor, Washington and London as an answer to a spy's prayer. All known Jap airplanes were given short, snappy, personal names. Fighters and reconnaissance planes were masculine, bombers were feminine. The officer in charge of the Intelligence Unit was from Tennessee, so all Jap fighters were labelled with distinctly hillbilly code names such as Zeke (Navy Zero), Kate (Nakazawa fighter), Bolo (Zoe with bomb), Hamp (originally Hap, Zeke with clipped wings), etc. Similarly the bombers, Nell, Kate, Val, etc. These nicknames were publicized by the War Department in the autumn of 1942.

Primary consideration was given to a name that in one way or another could be connected with the type itself. For example the double-engine Nell could be remembered as the "two-engine belle" that the zero plane Dewah had a nice "tweak," etc. Similarly the name "Zero" as the hillbilly names petted out, a few Jap fighters were named after some of the air force men, and bombers after their wives or sweethearts. Tony was so named because of the mistaken report that this first inline engine fighter was of Italian make. Except for Tony one of the best of the 1937-40 fighters, nicknamed an Oday where it was first spotted, all the code names are allotted by the Allied Air Forces in the Southwest Pacific area, but are first coordinated with Washington, London and India.

**New System Now in Effect**—A revision of Allied code names for Japanese aircraft has been put into effect at the Southwest Air Intelligence Center, Alameda, Washington, D. C. Based on the Japanese Army-Navy method for designating aircraft according to a "model type" system, the old Mark numbers for modification changes have been done away with. The new system is simpler, more consistent, ties in with the Jap model designations, and retains the short, snappy code names as outstanding. More of this will become known as the Pacific air war rages to a crescendo in the coming months.

NAVIGATOR

THE HIGH QUALITY

Lubricant  
FOR AIRCRAFT ENGINES

## OF TODAY AND TOMORROW

D-X Aviation Oil was developed to meet the needs of military aircraft. The "know-how" of more than 30 years' experience in manufacturing top quality lubricants . . . large resources of selected 100% paraffin base crudes . . . progressive research laboratory and one of the world's largest oil refineries . . . combined to produce this superior lubricant. Tomorrow, commercial and privately owned airplanes will have the advantage of this leader in first aviation oils. Inquiries invited.

MID-CONTINENT PETROLEUM CORPORATION  
TULSA, OKLAHOMA

## PERSONNEL

Aerco Corp., a subsidiary of Transamerica Corp., elected **Timothy E. Colvin** (photo) as president and director. C. A. Herbert, founder and president has retired. Colvin



Timothy E. Colvin

formerly was vice-president in charge of the Business division of the Aircraft Accessories Corp. Herbert will continue as a director of Aerco.

**John H. O'Connell** (photo) has been named manager of public relations



for Curtiss-Wright Corp.'s propeller division at Caldwell, N. J., replacing Samuel S. Tyndall, who has joined Hall and Kassabaum, public relations group in New York. O'Connell

joined the division in 1942 having served for two years as plant public relations manager at the Beaver, Pa., plant of the aggregate division. He returned to Caldwell several months ago to become assistant manager of public relations.

**T. G. Nohle**, member of the plant engineering staff of Northwest Airlines, has been appointed NWA regional field engineer for the Twin Cities area and the company's Eastern region between Chicago and Billings, Mont. He will have charge of new construction and alterations on NWA buildings, grounds and equipment. He was resident engineer for Northwest during the time the company operated the aircraft modification center at Vandenberg, Ohio.

Allegheny Ludlum Steel Corp., Brackenridge, Pa., has appointed **A. W. Nelson** as district sales manager of their Indianapolis office. Nelson was formerly district representative in Minneapolis. **R. C. Chesley** has been transferred from Chicago to replace Nelson in Minneapolis.

**A. C. Michalski** is returning to his previous post as superintendent of the Gadsden, Ala., plant of Goodyear Tire and Rubber Co., after having been with Goodyear Aircraft Corp. at Leitchfield Park, Ariz.

**Capt. John H. Connolly**, former skipper of the aircraft carrier *Barnegat*, has been named a rear admiral. He is now on duty in the office of the Chief of Naval Operations.

Aerovox Export Airlines has named **Capt. Robert J. Blanton** as assistant chief pilot in charge of training and **Capt. Roger G. Fowell** as assistant



Blanton

Fowell

chief pilot in charge of inspection. Blanton was a pilot for United Air Lines before joining Aerovox Export in 1942 and received his flight training at Kelly Field. Fowell is a graduate of Boeing School of Aeronautics and also flew for United as a first officer. Later he was with Continental Air Lines.

**William Macfield** (photo) is now superintendent of maintenance for Western Air Lines and its Island Air Lines division. Formerly superintendent of maintenance for Transcontinental and Western Air, Inc., at Kansas City, Macfield



will take over his new offices in Los Angeles on October 25. Western's former superintendent of maintenance, **Jake Bingle**, will remain with the airline's maintenance department in another capacity.



### 10-YEAR SPERRY PIN:

**Arthur E. Wackel** (left), aeronautical sales manager of Sperry Gyroscope Co., is awarded a ten-year pin by Dr. H. H. Willis, vice-president and personal sales manager of the company. Wackel joined Sperry as a pilot engineer and was field service manager prior to his appointment as aeronautical sales manager in 1942.

**Allen F. Rosenow** is Consolidated Vultee Aircraft Corp.'s new Vultee Field division resident director of public relations. Assistant director of public relations of the corporation's Nashville division for two years, he is replacing John Birkard, transferred to the New York office of Hill and Knowlton, Connor public relations consultants. W. F. Rosenow has been assistant factory superintendent of the Vultee Field division. He has been assistant superintendent in charge of major assemblies.

**S. W. Anselmi** has taken over the newly created post of director of sales of United States Plywood Corp. A vice-president of the company formerly in charge of its mid-western operations, Anselmi is establishing his office at the New York headquarters.



There, where he will direct the corporation's post-war sales expansion program.

Pen American Airways has appointed **S. J. Roll** as foreign trade coordinator and **John E. Mahfield** is assistant to the vice-president and general traffic manager. Roll formerly was assistant to the vice-president and general traffic manager with headquarters in New York. Mahfield has been general traffic manager for Pen American-Greece

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Marquette Windshield Wipers Assure Clear Vision

Savings in weight and cost are equally important to all aircraft operators, wherever their planes are flown



Our new hydraulic wiper assemblies provide the following advantages:

MUCH LIGHTER ✓ FAR LESS EXPENSIVE ✓ EASY TO INSTALL ✓ SIMPLIFIED & COMPACT ✓

The new hydraulic motor, though of ample power, is small enough to fit in the palm of your hand. There are fewer parts, which means reduced maintenance costs and less man-hours. Also—

IT'S APPROVED ✓ IT'S IN PRODUCTION ✓



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CLEVELAND 15, OHIO

Manufacturers of OVERHEAD and LIFTING WINDSHIELD WIPERS FOR AIRCRAFT  
HYDRAULIC OVERHEADS FOR HELICOPTERS • ROVER WEAVING TEXTILE SPINNERS • PUMP OIL PUMPS  
AIR COMPRESSORS • PRECISION PARTS AND ASSEMBLIES

# A CHANGE-OVER 'MUST'



"Cleaning and preserving of production equipment shall be accomplished with minimum delay after 'shot down'."  
Army Service Forces Bulletin, P.S. No. 300

As Government contracts are terminated, millions of dollars worth of idle Government and privately-owned machinery, precision tools, and other production equipment will have to be promptly processed against damaging rust for periods ranging from weeks to years.

That is why **Tenaco Rustproof Compounds** and other **Tenaco rust preventives** should be available for prompt use when change-over time arrives. These effective products meet Government specifications for exterior and interior application, and are available for immediate delivery. By ordering NOW you will eliminate possible last-minute delays and disappointments.

For exterior application, **Tenaco Rustproof Compounds** provide penetrating, self-sealing films which are not only waterproof but highly resistant to chemicals and fumes. Easily applied with brush or spray gun, they remain soft, healing over any scratches and abrasions. **Tenaco Rustproof Compounds** are long lasting and very economical.

In many cases where rusting already exists, costly chipping and scaling is eliminated because **Tenaco Rustproof Compound** penetrates and loosens the scale so thoroughly that removal is greatly facilitated.

**Tenaco Rustproof Compounds** have proven highly successful in protecting all types of guns and equipment from weather and salt water in overseas shipments.

**Tenaco Lubrication Engineering Service** and **Tenaco Products** for interior and exterior rustproofing are available to you through more than 7,500 **Tenaco** distributing points in the 48 States. **The **Tenaco** Company**, 115 East 42nd St., New York, 17, N. Y.



FREE! Send for this 36-page booklet today. Tells how **Tenaco Rustproof Compounds** prevent rust, where and how to apply them and why they are so successful. A single suggestion in this booklet may save thousands of dollars.



## TEXACO

## Rustproofing Products

TUNE IN THE TEXACO STAR THEATRE EVERY SUNDAY NIGHT—CBS

HELP WIN THE WAR BY RETURNING EMPTY DRUMS PROMPTLY

Alcock in Lima, Peru. He transferred to Pan American in August of this year.

**Clifford T. Chaslow** has been named assistant to the treasurer of Continental Air Lines, Inc., to work on special assignments, including presentation of estimates and negotiation data. Chaslow has joined Continental after having been in the controller's office at Transcontinental and Western Air, Inc., as contract supervisor and staff assistant.

**F. G. Mahood** is now assistant director of public information for American Airlines, Inc. He has been regional director for the eastern region of American with offices in New York. Mahood's headquarters will be in the general offices of the airline.

**Hartwell Aviation Supply Co.**, appoints **Ted Bink** as chief engineer and **Robert L. Math** as sales development engineer. Bink was chief design engineer at Dallas for North



Math Bink

American Aviation, Inc., and has been in position manufacturing since 1948. He has worked with The Glenn E. Martin Co., the Great Lakes Aircraft Co., and Douglas Aircraft Co., Inc. Math was with Goodrich Tire and Rubber Co., before joining Hartwell in 1943.

**Shirley research executive** at Curtiss-Wright aircraft division research laboratory is **James C. Evans**, who will act as assistant to Dr. C. C. Furness, director. Evans will continue in his capacity as assistant secretary of Curtiss-Wright Corp.

**Erin, Gen. William W. Webb** has been appointed assistant chief of staff for training in the Army Air Force, succeeding **Maj. Gen. Robert W. Hagen**, who has received an unqualified retirement assignment.

**Reginald E. Gilmer**, president of the Western Gyroscopic Co., and **Harley F. Vickers**, president of Vickers Inc., have been elected vice-presi-



#### TWA OFFICIAL HONORED:

**R. D. Blair** (left), acting chief of the Division of Protocol of the State Department, presented **Ottu Bryan**, Transcontinental and Western Air, Inc. vice-president, with a gold medal in the name of Israel. Bryan, president of the Republic of Turkey, the Turkish president sent the medal to commemorate his flight from Ankara to Cairo to attend a conference with President Roosevelt and Prime Minister Churchill. Bryan, who was an active army duty in the Air Force, was captain of the plane that carried them.

deuts of Sperry Corp., parent organization of the two companies. They will continue as heads of their respective subsidiary companies.

**William A. Colver** has been named vice-president in charge of operations of the Burbank Division of Aircraft Accessories Corp., replacing **Timothy H. Colver** who resigned.

**Paula Engineering Corp.** has appointed **Dan A. Bean**, shop superintendent, **Andrew Wilson**, assistant shop superintendent, and **Charles Roth**, purchasing agent.

**Maj. R. H. Mays**, designer of the pre-war plane, has been appointed air technical advisor to Shipping Airlines, Ltd. This company recently was formed by a number of British ship owning companies to operate air services between Great Britain and the continent of Europe.

**Col. Jergen B. Olson** has taken over command of Blackhawk Army Air Field at Waco, succeeding **Lieut. Col. Fred H. Bouda**. Colonel Olson has been in command of the AAF field at Gordon City, Kan.

**Aircraft War Production Council**, Post Office, has named **F. Thomas Humphrey**, flyer in the last world war and publisher of Portland, Ore. has been on leave as associate editor of the Journal in Portland as director in the Portland-Vancouver

area of the President's Committee for Congenial Areas. **Donald Howard Eddy** has been appointed district traffic manager for Braniff Airways in Oklahoma City, replacing **Al Wolff**, who will remain with the company in another capacity. Eddy was previously employed by Transcontinental and Western Air, Inc., at Kansas City. He was a business administration major at the University of Ohio, Columbus, Ohio.

#### TELLING THE WORLD:

• **Charles H. Gale** and Associates, New York, has been appointed public relations counsel at **Lanacore Airlines Corp.**, Trenton, N. J.

• Describe the round-the-world route it plans to operate after the war, Transcontinental and Western Air, Inc., has placed a 1,000-line, full-page size ad in 32 newspapers in 14 cities. The ad was the fourth of a series of six international ads started by **Jack Frye**, TWA president. **Arthur Kadant**, Inc., is the agency.

• United Air Lines scheduled a 1,000-line ad to appear in New York newspapers, headlined, "The Super on Flight 3." Copy tells how a stewardess on the line cared for a service man with pneumonia. N. W. Ayer and Son, Chicago, is agency.

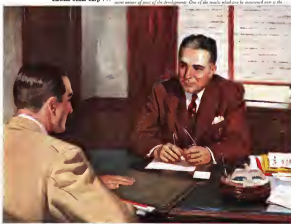
• **Park Air Culture**, East St. Louis, Ill., is now replacing one page of its monthly house organ **Park Air News** and mailing it to Boy Scouts and other young people. The printed matter is filled with news of interest to the readers.

• United Air Lines, Chicago, has begun an advertising campaign addressed exclusively to women. Full-page advertisements run monthly in *Vogue* and *Harper's Bazaar*, in addition to an advertised schedule in *Woman's Weekly Daily Copy* in the latest ad, titled "Why Women Fly." Instead the interest women have in air travel is shown. Ayer and Son is handling the campaign.

• **Roger C. Fleming**, for more than a year the regional director for the Federal Department of Civil Aeronautics in Indianapolis, has been appointed director of advertising and public relations for the Allison Division of General Motors. He has been in the public relations department of the company since 1936 and replaces **Volney B. Fowler**, who has been transferred to the Electro-Motive division. Fleming will also handle the national public relations recently directed by **Frances Walton** based at **Arthur J. Watkins**, Inc., Alameda's advertising agency.

**ALLEN H. GARDNER, President**

**Catalytic Radio Corp.**



### "TREMENDOUS INCREASE IN NEW USES FOR MODERN, VERSATILE VIBRATOR POWER SUPPLIES"

Yes, Mr. Gardner, many folks, after the war, will find E. I. Vibrometer Power Supplies the key to a host of new improvements in their products and services. The greatest among them, radio, television, radar, engine, aircraft and electronic are just a few of the sectors in which E. I. equipment will do many important jobs. The most significant new E. I. development is the perfection of an electrical current division circuit between vibrator corners. This has made possible an enormous increase in output capacity, to as much as 1500 watts at present!

For the instant field, Harrow Laboratories offer full featured constant current systems for fluorescent lighting in all types of vehicles at odd intervals, as well as a number of lamps.

E. I. is ready now to bring you the benefits of its tremendous new experience for two way radio in planes, many transcontinental boats, boats and other fields. Multiple input and output units are available. Vibrometer Power Supplies may be designed to supply any needed wave form. They are efficient and long lived and economy resistant with the minimum of maintenance. E. I. design engineering service will design a Vibrometer Power Supply to meet specific requirements in size, weight and voltage.

#### E. I. STANDARD ELECTRONIC TIMER MODEL S-1372

For flashing, wave light on aircraft. Easy to set to operate at high stability, over a temperature range of -35°C to +55°C and withstand 10 G vibrations. Characteristics: Input voltage, 115 VAC. Output voltage, 28 VDC at 500 cycles, 1000 cycles, 20 cycles per minute.

Dimensions: 7 1/2" x 11" x 11" (H x W x D)

Also available for 115 VAC input voltage





# Electronic

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# Instrument LEADERSHIP IN NAVIGATION, TOO!

## THE Fairchild AERIAL SEXTANT

WITH AUTOMATIC SIGHT RECORDER

As familiar as the Fairchild aerial sextant found in the camera bays of our combat planes, is the SEXTANT used in the planes used alone for celestial navigation by the U.S. Navy.

For Fairchild's role in the manufacture of these critical instruments, more of them being produced for our services than all other types combined.

Based on designs suggested by U.S. Army Engineers, the Fairchild SEXTANT is distinguished by its extreme compactness and light weight, and its skilled "balance" for handling ease. An improved air return chamber has been provided, too, the bubble now remaining "stable" during the entire sighting cycle. And providing of the corrective sight has been made automatic, with the duration of the sighting cycle optional.

Thus, in SEXTANTS too, Fairchild leadership stems from its development policy, of engineering from behind, and supplementing sound design with precise manufacture and craftsmanship. Look for many of these Fairchild developments... optical as well as electronic... to find widespread industrial application when "concrete" cases.



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THE STORY OF AERIAL PHOTOGRAPHY IS THE STORY OF FAIRCHILD CAMERAS

## AIRCRAFT PRODUCTION

### Treasury Dept. Ruling Paves Way For Plane Industry Reconversion

Decision that company-owned materials may be sold to U. S. for \$1 and losses incurred for tax purposes permits immediate disposal of large quantities of excess inventories under warehousing plan.

Another major hurdle to orderly demobilization and reconversion of the aircraft industry has been removed with a ruling of the Treasury Department that company-owned, excess materials can be sold to the government for \$1 and inventory losses entered for tax purposes. The ruling was sought in mid-July (Aeronautics News, July 17) and was made on reconversion of the Surplus War Property Administration.

The effect of the ruling is to permit immediate disposal of large quantities of excess inventories under the warehousing plan now in operation for government-owned excess supplies. It will permit orderly marketing of the materials and will remove a capital barrier of possibly as much as \$40,000,000 from the aircraft industry.

**U. S. Materials Transferred**—Government-owned materials have been transferred under the warehousing plan since Aug. 1, but supplies in this category comprised only about 60 percent of the total. The remaining 40 percent will now be absorbed, and scattered in favor of North American Aviation and approved contractors must be concentrated individually by other companies operating on a fixed-price contract. Copies of the North American contract have been sent to Consolidated Vultures, Curtiss-Wright, Eastern Aircraft Division of General Motors and the Glenn L. Martin Co. These companies have approved the substance of the contract and are expected to complete similar contracts with the Reconstruction Finance Corp.—W. G. K.

Sale of inventories already segregated and turned over to the Metals Reserve Co., RFC subsidiary, has been much better than most persons concerned expected, and the loosening of restrictions on civilian production is expected to

increase the flow. More distributors have been added to the program—with almost 40 new participants—as experience indicated the program was feasible.

Virtually 90 percent of the hardware and 80 percent of the steel reported to Metals Reserve has been shipped. Copper has not proved a problem and is moving well.

**Aluminum**—Only one spot in the marketing plan has been aluminum, of which only some 12 percent has been sold. One-third of aluminum supplies other than extrusions has been sold, but extrusions represent some 40 percent of the total and are virtually unsalable. Aluminum at best is a drag on the market today and aircraft aluminum does not lend itself readily to civilian production because of its high requirements of quality, weight and alloy. Some 20 percent of the aluminum tubing reported has been sold. It is anticipated that aluminum may be withdrawn from the warehousing plan and disposed of in some other way.

The new Treasury Department ruling was made specifically in favor of North American Aviation and approved contractors must be concentrated individually by other companies operating on a fixed-price contract. Copies of the North American contract have been sent to Consolidated Vultures, Curtiss-Wright, Eastern Aircraft Division of General Motors and the Glenn L. Martin Co. These companies have approved the substance of the contract and are expected to complete similar contracts with the Reconstruction Finance Corp.—W. G. K.

• National Airlines, Inc., Jacksonville, Fla., has appointed the M. H. Hackett Co. to handle its aviation in the eastern area.

## H. P. Nelson Leaves

Henry P. Nelson, Materials Coordinator of the National Aircraft War Production Council for the past year, is returning to International Harvester Co. with offices in Chicago.

Mr. Nelson first entered the aircraft war production picture when given a 60-day leave of absence to assist the War Production Board.



Henry P. Nelson

From there he was sent by the Army Air Forces to Los Angeles in connection with the aircraft program and later joined the West Coast Aircraft War Production Council before coming to the Washington central office.

**Program Established**—Not only has Nelson been a large part of the responsibility for the flow of materials to the aircraft industry through the war, but his work over the past few months has resulted in the clearance of excess inventories out of the aircraft plants into other industry, establishing a program that aviation circles believe will greatly facilitate reconversion of the industry.

That job done, he has been recalled by International Harvester, where he was manager of production before coming into war service.

## McDonnell Retools

McDonnell Aircraft is retooling for manufacture of anti-aircraft and landing gear sections for the Douglas C-54 Skymaster transport.

The company recently completed its contract for A-29 corvairs and manufacturing, as before, will entail considerable spot welding as well as some flash welding work. McDonnell has started assembly operations for the landing gear.

## Super Gases Studied For Post-War Use

Expected to bring shorter take-off, faster climb, speed and greater loading capacity.

New higher-octane rating gasoline, developed by the petroleum industry for military aircraft, are the subject of hopeful anticipation by the commercial aviation industry for post-war use which may be expected to step up aircraft performance in shorter takeoffs, faster climb, higher ceiling, faster cruising speed and greater load carrying.

Recently the Air Technical Service Command at Wright Field disclosed that a new super-grade line had been developed for use in the B-29 Superfortress. Pointing out that present standard fuel for the AAF is 100/130 rating, the announcement indicates that the new super-fuel was considerably better. The rating means a 100 octane rating for normal cruising with flash performance of 130 octane rating during takeoff or combat.

**Airline Tests Made**—Pre-war airplanes for the most part used 87 octane gasoline, with some airline fuel as high as 92 octane rating. Tests conducted with 87 octane fuel as against 90 octane fuel, show that a plane can carry a load 3,600 pounds greater, on a 1,000 mile flight, with the higher octane fuel.

The ATSC announcement indicated that a change from present Army aviation fuel to the still higher octane ratings was impeded by the demand for large quantities of gasoline immediately. However, since supergasoline is now being produced and it is hoped that soon it will be forthcoming in large quantities.

**Petrol Cost Expected**—Post-war estimates from petroleum research experts indicate top quality gasoline price will be lower than before the war. While postwar aviation gasoline demand is expected to shrink to less than 150,000 barrels a day, as against a present output of more than 500,000, the drop in volume will be offset at least partly in floating cost, by advancement of high cost producing units now in operation because of the war emergency, in favor of more economical units.

The industry expects to meet demands for a high octane fuel with a very high flash point, making it difficult to ignite by open



### EQUIPMENT LAB CHIEF:

Col. George V. Holbrook, chief of Equipment Laboratory, AAF Air Technical Service Command, Wright Field, Dayton, who directs activities of more than 600 Army and civilian engineers in developing AAF electrical systems, aircraft instruments, special weapons, training devices, maintenance equipment, special vehicles, etc. Holbrook was co-developer of the first fully automatic landing system for aircraft, and in 1937 piloted the first plane to make a completely automatic landing. The achievement won the Mackay Trophy and the Distinguished Flying Cross. His other developments include an electric throttle control, an automatic altitude control device which opens and closes a switch at any selected altitude, a radio-controlled target plane, a mechanical signal control for radio ranges, an automatic radio range for instructions, an automatic instrument landing transmitter unit and a number of secret weapons. He has been assigned to Wright Field since 1921.

flame, an important safety improvement.

**Gasoline**—airports may carry as many as three grades of aviation fuel, or if demands for various grades warrants, may operate gasoline blending plants at the airports, to suit the customer's demand.

Another post-war development which eventually will emerge, will be a new standard for rating aircraft fuel to replace the present octane rating system. Under the octane system, 100 octane fuel is theoretically as good as can be developed, yet some fuels now developed, and certainly the new supergasoline, are far beyond this level.

## Australian Output Tops 2,500 Mark

Production, started in 1939, includes types ranging from trainers and ambulance planes to torpedo-carrying bombers.

Starting practically from scratch in 1939 with aircraft construction just beginning and no component parts industry to feed it, Australia has produced more than 2,500 planes ranging from trainers and ambulance planes to torpedo-carrying medium bombers.

Largest single project was the two-engine Beaufort bomber, manufacture of which has been given way to the Beaufighter. Originally, dies, jets and engines for the Beaufort were to have been imported from Britain, but this plan had to be abandoned after Dunkerque. Consequently, when the first Beaufort was completed in July, 1941, it was an entirely Australian version, including two new 1,200-hp. Pratt & Whitney Whirlwind engines built by the Commonwealth Aircraft Corp. By November, 1943, the Department of Aircraft Production, maker of the Beaufort, had passed the 500 mark.

**Re-equipped in 1936**—CAC was the first Australian aircraft manufacturer, incorporating in 1936. Its first service type, the North American Harvard trainer, called Wirrawarra, was built—only five months before war began. For months after Pearl Harbor, the Wirrawarra was used as a fighter and even as a dive-bomber. Before the completion of the Wirrawarra program this year, the de Havilland Aircraft Co. also made this type.

Other aircraft manufactured in Australia are the Mosquito, Mustang, and two all-Australian designed craft, the Boomerang fighter and a twin-engine bomber carrying two torpedoes. A plant is being erected in New South Wales for production of an Australian-designed high-powered liquid-cooled engine.

### Adel Deliveries

Delivery of \$11,800,000 worth of hydraulic equipment during the eight months ending Aug. 31 is reported by Adel Precision Products Co., Burbank, by Ray Ellwood, president. Company's production is wholly military and devoted to military aircraft accessories.

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## Production Begun On Long Range P-47

Operations on new Thunderbolt expected to be at full schedule by February.

Trend of military operations is emphasized by disclosure that Republic Aviation is starting production on a new, long-range model of the P-47 Thunderbolt, with full production by February.

Modifications designed to fit the Thunderbolt for new assignments in the Pacific are of minor restricted. As a result of the schedule for the new model, production of the current Thunderbolt will be cut back. Orders for the new model are not so large as for the present type, but company officials are seeking additional workers rather than expediting separations.

**18,000th Produced**—Reports of production of the new model came almost simultaneously with the announcement that the 18,000th P-47 Thunderbolt will fly at the assembly line at the Farmingdale, L. I. plant, just two and a half years after the first Thunderbolt was delivered to the Army.

Republic was building P-43 Lancers for the Army when the Army Board in June, 1940, outlined the need of a faster, more powerful fighter. The experimental model of the P-47 was flown from Farmingdale to Mitchell Field May 6, 1941. Production got under way during the following November and the first Thunderbolt was delivered to the Army Mar. 14, 1942.

**Measurements**—Thunderbolt measurements are: Weight, more than seven tons loaded; Wingspan, 45 feet; speed, more than 425 mph; power-plant, 2,800 hp, 18-cylinder Pratt & Whitney Double Wasp engine; armament, eight 50-caliber machine guns; bomb load, 2,000 pounds. The P-47 is a fighter-bomber, equally effective as an escort fighter at high altitudes or in dive-bombing and strafing in connection with ground operations.

Steadily improved by engineers' changes dictated by combat experience and changing requirements, the P-47 has taken on added features, including water injection, external fuel tanks, improved turbo, improved propeller, bubble canopy, increased internal fuel capacity and dive flaps.



### PLASTIC 'COPTER CABIN'

Structure of the Sikorsky HO-4 Seahawk is fibreglass, laminated with thermo-setting resin. The material was developed and is produced by the United States Rubber Co., weighs only half as much as aluminum of same thickness. It combines light weight with great tensile strength, rigidity, ability to withstand stress and accurate vibration.

### Nutt Quits Wright

Arthur Nutt, vice-president of engineering, has resigned from Wright Aeronautical Corp. He joined Wright in 1935, when he became vice-president shortly after the merger. In 1939 of Curtiss and Wright interests. Nutt had been with Curtiss Aeroplane and Motor Co., in Buffalo since 1918.

**Co-Ordinated War Projects**—A past president of the Society of Automotive Engineers, Nutt has been active during the war in co-ordinating war research projects and served as navy engineering consultant and consultant engaged in war research and standardization work.

Prior to the war, Nutt traveled extensively in Europe and Asia studying aircraft engines and general aviation trends.

### De Havilland Shuffle

Control of De Havilland Aircraft of Canada, Ltd., has been transferred to a board composed of Robert A. Lindbergh, J. Douglas Woodard and Barbara L. Smith as a result of the resignation of J. Great

Guano, controller of the company for the Canadian government since June, 1943.

### Wildcat Schedules

#### Cut, Avengers Up

An increase in schedules of THM Avenger torpedo bombers and a decrease in FM-2 Wildcat fighters for the Navy has been set for the Eastern Aircraft division of General Motors, which makes them Grumman aircraft.

The monthly schedule of Wildcats remained at peak through last month, while the gradual increase in the Avenger schedule is now in operation and should reach a new high by the first of the year.

**Aviation Rate Law**—The number of employees of the Linden plant who will be affected by the Wildcat cutback has not been estimated but Eastern Aircraft officials expect many of them will be shifted to the Trenton and Ferrytown plants. The Wildcat has had an unexpectedly low combat attrition rate.

### Canadian Car Schedule

Canadian Car & Foundry will maintain its aircraft division at Fort William, Ont., but continues operation throughout 1944. It was announced at the plant recently by C. D. Howe, Department of Munitions and Supply Minister. The plant is producing Curtiss Hellcats for the U. S. Navy and the company plans in addition to take over the Royal Canadian Air Force elementary flying training school at Fort William for use in the Hellcat contract.

### Mosquito Contract

Contract for production of 25 Mosquito fighters monthly, in addition to the output of Avrocs V fighters, has been given to Cockburn Modified Aircraft, Ltd., Bramford, Ont. The Mosquito is produced by de Havilland Aircraft of Canada, Toronto, with subcontracting of fuselages and wings and tail assembly at plants throughout the Dominion.

It is expected that the Avrocs fuselage production will be completed about the end of the year with the finishing of the aircraft training program in Canada and that Mosquito fuselage output will be stepped up accordingly at Cockburn.



The Link Crew Navigator Trainer illustrates the flight characteristics of our big aircraft, even in reproducing the story by which Super Fortress navigators clock their course on missions over thousands of miles of land and water, for ten days straight. With full complement of modern aircraft instruments, fuel tank gauges, fuel, navigation and communication. The "Link" was developed by Link for the air forces of the United Nations.

THE LONG-GUARDED victory of Sasebo, important base since 1886 of the Japanese Imperial Navy, was rapidly shamed July 7, 1944. At dusk on that day, three suddenly appeared in the sky above Sasebo a strong formation of American bombers. From each plane, in quick succession, burst tons of demolition and incendiary bombs.

Great Boeing Super Fortresses "hit Sasebo on the nose" after flying from Chinese bases, well over 1,000 miles away. Yawata and Onawa war industries were also visited, destructively. All the American planes came home.

This historic flight was a marvel of preparation and navigation. Such missions, which involve exacting problems of navigation, are well rehearsed long before takeoff, in the Link Crew Navigator Trainer on the ground.



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## Equipment Commitments Focus Attention on Airline Financing

United, Eastern and American, with contracts for new Douglas aircraft, will have little difficulty in meeting obligations.

Recent commitments aggregating more than \$50,000,000 for new equipment by three of the airlines again focuses attention on the industry's financing problems.

United Air Lines, purchasing 15 Douglas DC-4's and 30 DC-6's, is said to be in need of an obligation of approximately \$10,000,000. The line also is considering purchasing 15 DC-6's additional, which would entail an additional expenditure of about \$6,775,000.

**Preferred Stock Based**—It was only in January of this year that United raised about \$10,000,000, earmarked for expansion, through a new preferred stock issue. To this can be added \$1,918,715 in special plane replacement fund realized from sales of equipment. As of Dec. 31, 1945, the company had net working capital of \$11,344,696. Based on the trend of earnings and depreciation charges, net current assets should be improved by an additional \$5,756,000 for the nine months ended Sept. 30, 1946.

Equipped, this makes more than \$30,000,000 currently available. Of course, normal operations will require a substantial working capital balance, and expansion in Mexico or elsewhere will require capital outlays not now known.

If the carrier does not run into any deficit operations during the ensuing 18 months, based on the foregoing projections, it is difficult to see any need for United to seek \$15,000,000 in the near future solely for the planes announced on order and contemplated.

**Eastern**—The purchase of 10 planes, in the expansion stage, by Eastern should also not prove a serious drain on that carrier's financial resources. As of Dec. 31, 1945, Eastern showed working capital of \$13,646,352. Earnings and depreciation charges for the first nine months of this year should add approximately \$1,750,000. The indicated cost for the new planes,

at the maximum, should not exceed \$4,560,000.

American Airlines, on the other hand, is clearly faced with a financing problem should it be called upon to take immediate delivery of the entire lot of 25 DC-4's and 30 DC-6's. Such purchase would run to approximately \$25,175,000. As of Dec. 31, 1945, American had net working capital of \$10,540,138. Earnings and depreciation charges for the nine months ended Sept. 30, 1945, should contribute about \$4,500,000 additional.

**\$3,000,000 Outlay**—American, moreover, is faced with an outlay of \$3,000,000 for purchase of a compelling interest in American Export Airlines, should this transaction be approved by the Civil Aeronautics Board. Other capital expenditures potentially will be incurred by American if its expansion program, domestic or foreign, makes any tangible progress.

American has not disclosed its financing program but little difficulty should be encountered in meeting the equipment financial outlays for this and other carriers.

C. Rodell Moore, president of PCA, recently disclosed that if his company were successful in obtaining new route mileage applied for, about fifteen to twenty new ships will be required by the end of 1946. He indicated funds would be obtained through some equity financing as well as insurance or equipment trust certificates or use of conditional sales contracts.

**Equipment Trusts**—It is likely that the extensive use of equipment trust paper will make its appearance within these large scale purchases. The merits of this type of financing are well regarded. It permits the raising of capital when needed at low cost without serious indebtedness of underlying equity structures.

As an interesting aside it is noteworthy that existing planes

are carried at drastically low valuations among the carriers. For instance, United Air Lines, as of Dec. 31, 1945, owned 33 planes which it showed as having a net depreciated valuation of \$1,432,956 or about \$43,000 average for one. American, similarly, showed a net valuation of \$1,216,715 for 97 planes with an average of about \$12,500 per plane.

These planes undoubtedly have seen many years of service but the excellent system of maintenance has kept them in the operating condition. It is probable that very few of the original parts remain in these planes, having been replaced in the overhaul processes. These low valuations in the balance sheets are a source of hidden strength. In the first place, the carriers are not burdened with high-cost existing equipment which in itself discourages new and improved fleets. Further, as these old planes are sold, it is likely some profit may accrue to the carriers involved.

## Financial Reports

**Lockheed Aircraft Corp.** directors have voted an interim dividend of 50 cents per share payable to stockholders of record Sept. 16. The declaration is in line with Lockheed's policy of paying dividends from time to time as conditions warrant, according to Robert E. Gross, president, and does not establish a schedule for payments in the future.

**Sperry Corp.** reports net income for the six months ended June 30 of \$4,573,257, or \$2.18 1/2 a share compared with \$4,342,513 or \$2.11 a share for the 1945 period. T. A. Morgan, president, notes that shipments for the first half of this year are about 6 percent less than for the first six months of 1945.

**Boler Manufacturing Corp.** for five months ended May 31, last, reports net profit of \$176,247 or 78 cents a share. For the full year 1945 the company reported a net profit of \$357,167 or \$1.59 a share. **Alphacase and Marine Instruments, Inc.**, for six months ending June 30, last, reports net profit of \$293,178, after \$400,000 provisions for losses and revaluation, equal to \$1.39 each on 228,150 shares. In the full year 1945, net was \$149,805 or 66 cents a share.

**McDonnell Aircraft Corp.** declared dividend of \$1.50 per share on the \$6.00 preferred stock payable Oct. 2, 1946 at stock of record Sept. 25.

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## Others Expected to Follow AA In Filing New Low Cargo Tariffs

Interest of traffic and freight men in proposed rate reductions believed to precede general move toward development of volume business through slashing of costs.

By DANIEL S. WENTZ II

The intense study airline traffic and cargo men are giving to the schedule of air freight tariffs filed by American Airlines with the Civil Aeronautics Board indicates other domestic carriers are preparing to follow American's lead.

Domestic air carriers have not been completely satisfied with their freight arrangements through the Railway Express Agency's Air Express Division, although interline revenues make American's center of the initiative a touch subject.

**Rate Cuts Favored By CAB.**—Likewise, CAB, while it has not yet approved American's tariff, is almost certain to concede in any move which points to a general lowering of the rate structure. The Board shares the general belief of airline men that air transport cannot really come into its own until freight charges have been moved sharply downward.

The Justice Department's attitude also has been made plain in its warning last year which resulted in amendments of all RRA surface contracts.

**Cuts Under RRA Rates.**—American Airlines' proposed schedule of tariffs, effective Oct. 15 if the Board approves, cuts sharply under the RRA rates, in some instances by as much as 55 percent. (See accompanying table.)

American's tariff is patterned on the commodity classification plan derived from many years' experience in railway freight loading. Criteria for classification involve such items as value, volume, density, perishability and fragility among others. It is carefully designed to discourage short haul business (few rates are published for distances under 450 miles, with few exceptions), and is also arranged to discourage shipment of small quantities. In some instances, a commodity in 500 pound lots is

rated in Class C, the same commodity in 1,000 pound lots moves into the less costly Class B Rates are likewise calculated to discourage shipments less than 20 pounds. (See accompanying table).

**Perishables.**—A special tariff for perishable agricultural commodities in 5,000 pound maximum lots cuts the rate even further to approximately 35 cents per ton-mile.

Tariff men studying American's schedule are wondering what differentiation is to be made between air express and air freight, the former moving at passenger-schedule speed and the latter more slowly. Another question still to be answered is the problem of pickup and delivery between shipper and airport and between airport of destination and the consignee. American has not revealed its plans to deal with this aspect of shipping, but its rates do provide for special discounts in cases where the shipper himself delivers the cargo to the airport.

**Pickup Trucks.**—Some observers suggest American may be planning to acquire a fleet of pickup trucks, or may seek some arrangement whereby the trucks of the RRA will pick up and deliver American shipments.

Optimism is general among those who believe that the new tariff will have been designed to discourage shipments under 25 pounds.

Between N. Y. and	Rate per 10 lb. shipment				Railway Express Rate per 10 lb. shipment	
	A	B	C	D		
Goodwill	80.00	30.00	22.75	20.75	80.00	
Chicago	25.00	10.00	7.50	6.75	25.00	
Memphis	17.50	7.50	5.50	5.00	17.50	
St. Louis	15.00	6.50	4.75	4.25	15.00	
Los Angeles	12.50	5.25	3.75	3.25	12.50	

The following table shows how American Airlines' proposed schedule of tariffs cuts short-haul rates under present Railway Express Agency rates for air express shipments:

Between N. Y. and	Rate per 10 lb. shipment				Railway Express Rate per 10 lb. shipment	
	A	B	C	D		
Goodwill	80.00	30.00	22.75	20.75	80.00	
Chicago	25.00	10.00	7.50	6.75	25.00	
Memphis	17.50	7.50	5.50	5.00	17.50	
St. Louis	15.00	6.50	4.75	4.25	15.00	
Los Angeles	12.50	5.25	3.75	3.25	12.50	

### 6.55 Rate Attacked

A new cost-benefit analysis by the Department of Agriculture and Edward E. Ford, Transportation Research, visualizing post-war air cargo contract operations, covering perishables cost at less than \$50 cents a ton-mile and estimating with manufactured goods at 9.08 cents a ton-mile, drew immediate fire from James A. Wooten, cargo traffic manager for American Airlines.

Wooten headed the 6.55 cent estimate in "absolutely ridiculous," and predicted an air freight rate of 16 cents a ton-mile. See "This year's future." He made his observations at Los Angeles, an American airport to send to Cincinnati via a chartered DC-3, a 5,000-pound cargo of day-fresh Los Angeles spinach in winter. American claimed that the American government's product shipment of its kind made it date. American carried the spinach at a 26-cent a ton-mile rate. Sale in Cincinnati was to be at 20 cents per 10-curve package.

The Justice-Agriculture study discussed post-war air transport costs and markets for between, of which test shipments have been made over TWA.

that, following American, other domestic carriers will seek to a move to lower rates downward and to ensure their post-war position by making a strong bid for a greatly increased freight and express business.

American's fleet is not large enough to permit it to handle all the freight and express the new rates schedule will attract. It is believed, however, that the line is viewing the plan as a means of absorbing that portion of the DC-3 fleet when larger and more modern passenger ships are delivered.

## NORTHROP BLACK WIDOW P-61 NIGHT FIGHTER

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This revolutionary new fighter has a "combustion engine" that gives it a speed of 400 miles an hour, and a "jet engine" that gives it a speed of 500 miles an hour. It is the P-61 Night Fighter.

This deadly fighter strikes and fires enemy planes to great distances, as no other airplane can. It packs enough 30-caliber cannons and 50 caliber guns to blast apart anything that flies.

Big as it is, the Black Widow is fast as smaller fighters. Yet it can literally batter its way skyward.

and has a take-off speed, climb sharply, and has a very slow landing speed for additional safety.

It is powered by two 2000 horsepower engines. It has plenty of room for its fighting crew of two or three operators, and a long cargo bay.

A remarkable record of speed in history designed and produced by Northrop. It has given the jet "landing" speed. It has given the jet "landing" speed. It has given the jet "landing" speed. It has given the jet "landing" speed.

Through the use of the jet engine, Northrop's genius ideas will continue to serve America.

## Model Feeder Airliner Data Compiled For Proposed Carriers

FAA Technical Committee specifies 18-22 place all metal, high wing, twin engine monoplane with additional space for ton of cargo; equipped for instrument and night flying.

Specifications for a feeder line plane which the newly formed Technical Committee of the Feeder Airlines Association believes would satisfy the needs of Association members are being submitted to manufacturers.

They call for an all-metal, high wing, twin engine monoplane with a seating capacity of 18 to 22 and space for a ton of cargo, equipped for instrument and night flying, with full feathering propellers, capable of landing or takeoff within 1,000 ft. when fully loaded. Cruising speed would be 170 mph range 500 miles plus are required reserves, and gliding angle 7 to 1. A three-level landing gear would take care of 38 mph cross winds.

**► Three Flying Features**—Since the Committee's goal is 30 seconds maximum ground time at each stop where no trunk line connections are made, it recommended as time-saving features underlark refueling, retractable passenger steps lowering automatically with the opening of the passenger door, and a minimum of eight bins under the floor, with individual outside self-locking doors, for small mail and express packages.

Chapman Oliver L. Parks said at St. Louis, where the group held its first meeting, that such planes should be built for \$60,000 to \$80,000. He forecast an immediate demand for 400 for domestic use and 300 for export, with an eventual market for 4,000.

The committee believes the high wing will make loading easier, afford better passenger view, and be better for low altitude operations (below 1,000 ft.) where visibility may be low at times.

**► Short Run Likely**—Expectations in that landings will be made on an average of every 16 miles, at least half of them on turf runways requiring rugged landing gear and concrete tires. In addition to the low runway length and steep glide, they want the ship to be fully maneuverable at 93 mph.

The take-off rate is calculated to cope with obstacles close to small airports. With the 1,000-foot limit on landing and takeoff, the Committee has in mind the possibility

of setting the ship down at one end of a 2,500-foot strip, taxiing about half way to a stop about half the length, discharging and taking on passengers in a hurry, then taking off again using the remainder of the runway. The idea is that it would be better to accommodate plane performance to existing facilities than insist on larger airports.

**► The Pickup Requirement**—Cargo capacity of 2,000 pounds would include pickup equipment if used, the plane to be designed so that such a unit could be installed at any time without structural changes, and stressed for a maximum pickup load of 300 pounds with apparatus such as that used by All American Aviation. The pickup unit itself would not exceed 300 pounds. Design calls for a movable bulkhead between forward cargo compartment and passenger section, with 10 minutes maximum to be allowed for removal of seats and enlargement of cargo compartment. Last 12 seats in the passenger section would be permanently installed.

Passenger doors, like lifts to the cargo bin, would be on the left side. Passenger door would be 30 inches x 70 inches, front cargo door 68 inches by 60 inches, and rear cargo door 30 inches by 30 inches.

The 18-22 passenger seating capacity is on the basis of 200 pounds per passenger, including baggage. Each passenger will be responsible for his own baggage, eliminating need for a checking system.

For passenger comfort, the temperature control system will be at least equal to the DC-3, air conditioning, heating and cooling, individual reading lights, ventilators and co-pilot built-in (there would be no buttons), chemical toilet with wash stand, and drinking water supply. Members of the committee are Chairman Parks, president of Parks Air College, B. D. Otto of Otto Airlines, Herbert C. Fox of Southern Aviation Corp., Eugene H. Stewart of Royal School Aeronautics, Philip C. Wagner, Parks Air College, Halley R. Bailey, All American Aviation, and Don V. Severn, FAA executive director. Technical questions and applicants for feeder routes belong to the Association.

## NAL to Use EAL Airway to Florida

New facilities opened not yet available on line's own coastline route.

National Airlines' newly opened New York-Florida service will operate over the same federal airway used by Eastern Airlines' AM 3 and 8, it was learned last week, despite the fact that this route is longer than the coastline route.

National eventually will use Airway facilities not available on National's own route, although the line may try to connect under favorable conditions.

National's plans call for use of Lookheed Lodestars and more modern planes are available. A meeting of National's directors last week authorized President G. T. Baker to begin negotiating to purchase \$5,000,000 in new aircraft. **► Via Savannah and Charleston**—The new route is to be operated via Savannah, Ga., and Charleston, S. C., but airport authorization for

the latter had not been confirmed at the week end. Norfolk, shorter certificated stop, cannot be served until military restrictions in that area are lifted. Fuel stops will be made at Raleigh, N. C., and Washington, D. C., but passenger service cannot be provided to or from those points.

National's operations at New York will be conducted from hangar space at La Guardia Field and other space in the Airlines Terminal Building.

The line has announced that as soon as practicable after the war it plans to install motion pictures, cocktail service and stock tickers as additional passenger comforts.

## Lea, Bulwinkle Plan Bland Bill Fight

Legislative authorities of the Maritime Commission to permit steamship companies to operate aircraft will be fought in the last ditch in the House by Chairman Lea of House Interstate and Foreign Commerce Committee and Rep. Bulwinkle, chairman of the aviation subcommittee.

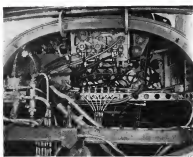
The bill was introduced by Rep. Schroyer, Ohio (D., Va.), chairman of the House Committee on Merchant Marine and Fisheries, as an amendment to the Merchant Marine Act of 1936, and referred to Blain's committee, known as favor it.

**► Jurisdiction Specious**—The question of competitive jurisdiction will be brought to the forefront. Lea maintains all matters relating to aviation—foreign or domestic—come within the purview of his group. He has been alerted in this position by House majority leaders until the Blain bill went to Merchant Marine and Fisheries.

A highly significant fact is that the jurisdiction would give the Maritime Commission jurisdiction over foreign air route applications. It is this provision of the bill, even more than the provision removing restrictions on air operations for steamship companies, which meets Lea and Bulwinkle objections.

## ALDA to Meet October 3

Air Line Dispatchers Association (ALDA) opens its two-day annual convention at Chicago, Oct. 3, with an agenda confined to Association business. President Joe H. Orr expects delegates from 35 ALDA councils in the U. S., Canada and Alaska.



Instrument Panel — DOUGLAS DC-3  
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## TWA Exhibit Shows Senate Group Results of Regulated Competition

Analysis placed in unpublished records of Commerce Committee's aviation subcommittee cites public benefits derived from application of system to airlines.

What regulated competition among air transport companies means in terms of public benefit has been analyzed and placed in the unpublished records of the Senate Commerce Committee's aviation subcommittee by Transcontinental & Western Air.

This analysis is documented from such sources as the Civil Aeronautics Board, the Air Transport Association, the Federal Civil Aeronautics Board, the official Guide of the Airways, the Post Office Department, the Commerce Department, Moody's International and the records of Pan American Airways on file with the CAB.

A digest of the testimony, as contained in 21 exhibits, follows:

**Reductions in passenger fares.** Average domestic passenger fare per mile declined progressively from 12 cents in 1908 to 9 cents in 1941.

**Reductions in air mail rates.** Domestic air mail payments declined 50 cents per pound, mile from 40¢ in 1933 to 41¢ in 1943.

**Increases in schedule frequency.** Number of daily flights over total route mileage of domestic airlines increased from 5.28 in 1933 to 8.35 in 1941. In the same period route mileage increased from 35,389 to 43,830 or 23.5 percent.

**Safety.** All United States airlines combined lost 6.8 million passenger miles per passenger killed or seriously injured in 1937, compared with France 8.3, United Kingdom 8.8, Germany 4.4, Switzerland 3.3, Netherlands 3.3, Italy 2.3, Romania 1.4, Belgium 1.1 and Poland 0.5.

**Utilization of planes.** Pan American Airways system (including all affiliates and subsidiaries) in 1941 operated 169 planes over 24,254,699 plane miles for an average of 144,668 miles per plane. Respective figures for all domestic airlines were 359 planes, 146,051,306 miles for an average of 399,393.

**Comparison of aircraft utilization.** In 1941, average daily utilization per seat-hours for the PAA-Panagra system was 2.24, for the domestic airlines, 6.35. Here it was pointed out that on the

PAA-Panagra system DC-3 depreciation cost per hour was \$21.75 and on TWA the depreciation cost was \$9.95.

**Passenger fare comparison.** For a trip from Miami to Kansas on airlines, a distance of 181 miles, the fare is \$20. From New York to Harrisburg on TWA, 194 miles, the fare is \$10.90. From Miami to Harrisburg on PAA, 1133 miles, the fare is \$150.

**PAA passenger fare history, non-competitive versus competitive routes.** From Miami to Havana, Port au Prince, San Juan, Antigua, Port of Spain, Paramaribo, Georgetown, New York de Janeiro and Buenos Aires, the PAA average cents per mile rate remained .0941 from July, 1939, to July, 1943. From Brownsville to Mexico City, Mexico, New York de Janeiro and Buenos Aires, the PAA average cents per mile rate remained .0941 from July, 1939, to July, 1943. From Brownsville to Mexico City, Mexico, New York de Janeiro and Buenos Aires, the PAA average cents per mile rate remained .0941 from July, 1939, to July, 1943.

**Passenger miles flown by European and American air carriers.** In 1937, all United States airlines flew 522.6 million miles. All European airlines flew 275.5 million in the same period.

**By 1938, U. S. domestic airlines flew 57.2 million ton-miles, whereas the nearest rival in Europe was Imperial Airways with 14.3 million ton-miles. In the same year, all U. S. airlines flew 65.3 million plane-miles whereas leading European airlines flew 23.4 million.**

**Total U. S. aircraft fleet in 1938 was 338 planes, whereas total European fleet was 163.** In 1938, U. S. domestic airlines flew 57.2 million ton-miles, whereas the nearest rival in Europe was Imperial Airways with 14.3 million ton-miles. In the same year, all U. S. airlines flew 65.3 million plane-miles whereas leading European airlines flew 23.4 million.

**Daily average aircraft utilization under war department contract.** The exhibits show that PAA utilized



TWA'S 5,000TH OCEAN FOP

Distances of being the first domestic airline to finish 5,000 ocean crossings for Air Transport Command is claimed by Transcontinental & Western Air, whose vice-president, Otto F. Bryner, pictured congratulating Capt. Hugh Merriam on the 5,000th flight. Merriam's C-53 arrived in Washington from Great Britain with a load of wounded service men. Pan American Airways announced last November completion of its 5,000th trans-ocean crossing since Pearl Harbor.

used its aircraft 344 hours daily in July, 1942. The TWA figure for the same month was 5.63. In May, 1943, figures for the same carriers were 7.47 and 9.32 respectively.

### Santa Fe Airline Seen

The Santa Fe railroad may combine air transportation with improved surface operations in the near future, according to Fred G. Gorley, new Santa Fe president, recently told shippers and traffic men at Port Worth. Directors of his company, Gorley said, are studying results of a survey on the possibility of handling some of the system's business by air.

### C. R. Smith Promoted

Brig Gen Cyrus R. Smith has been promoted to major general, according to press dispatches from Paris. Smith's elevation to the temporary rank of major general was confirmed recently by the Senate. Former president of American Airlines, he has been deputy commander of the Air Transport Command under Maj. Gen. Harold G. George, and will continue in that command.

## Delta Asks Links To Miami, Kansas City

Delta Air Corp. has applied to the Civil Aeronautics Board for extensions of its present system which would give the line a route between Miami, Fla., and Kansas City, Mo., linking Birmingham, Ala., with Kansas City via Tupelo, Miss., Memphis, Tenn., and Springfield, Mo., as a leg of AM24, and connecting Miami with Savannah via Brunswick, Ga., and Jacksonville, Fla.

**Ship Operator Files.** A large steamship operator, the American South African Line, Inc., has applied for an overseas route between New York and Cape Town via Johannesburg, Union of South Africa. Intermediate stops include Belem, Brazil, and Falmouth, Leeward. An alternate routing was Trinidad, Barbados, Gambia, and Lorient, French Equatorial Africa, also is asked. Company plans to operate a commercial version of the Martin Mariner over the routes if certified. Other applications include:

**Woolley Airlines.** Atlantic routes: A new line between Washington and Seattle via Denver, Yakima, Tacoma and Portland, Alaska. Eastern Air Lines, an addition of New York and Washington, D. C., to Atlantic routes on AM 1.

**Northwest Airlines.** For extension of AM 1 with extension to Chicago and Minneapolis. Northwest Airlines is studying the possibility of extending its route to Seattle via Portland, Ore., and Tacoma, Wash.

**Design Engineer WANTED**

Young, progressive engineer with design and drafting ability necessary. Interest and knowledge in light aircraft, structures, power plants or hydraulics and electronics desirable. Apply

P-122, AVIATION NEWS  
48 POST STREET  
SAN FRANCISCO 4, CALIF.

## PCA Adds \$10,000,000 To Douglas Backlog

Panama-Continental Airlines swelled Douglas Aircraft's backlog of four-engine commercial transport orders by about \$10,000,000 last week when G. Beoli Monte, PCA president, signed with Douglas at Santa Monica for 15 DC-4's for post-war delivery.

The order brought to more than \$60,000,000 contracts since the middle of last month for DC-4's and DC-6's. United Air Lines, American Airlines and Panagra agreed about two weeks earlier to take 93 of the big planes—49 DC-4's and 50 DC-6's. Douglas had announced the number would reach 148, but it was expected to do so through an additional order from United for 15 DC-6's.

**Contract Signed.** PCA's contract signed by Donald Douglas' office in the Santa Monica plant. Mr. Monte, who was accompanied by J. H. Gensbach, PCA vice-president, predicted that the DC-4's would be particularly effective over routes such as PCA's among nearly 50 cities in the industrial east, north and south.

## SHORTLINES

One of the major railroads that has not arrived at a final policy on air transportation is the New York Central. Via NYC official said recently that the road's researchers are studying the post-war situation in an effort to anticipate public needs, but air policy as well as other post-war plans will depend on actual post-war conditions.

**Engineering improvements.** of planes and power plants are expected in many quarters to bring sharp reductions in total air transportation costs at the next few years. Some industry observers caution, however, that the so-called "burden" cost of other departments not calculated immediately with the fitting of the planes may not come down proportionately, and should be considered in air transport rule estimates. Included are such items as traffic, advertising and publicity, administrative, accounting and engineering expenditures.

The Civil Aeronautics Board's report on the recent crash of a Pan American clipper at Nags Bay, Cuba, probably will be issued this month. Also nearly ready is a report on the crash of an American Airlines plane into the Mississippi near Memphis last year.



### HIGHER AND FASTER WITH FEDDERS

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### AA to Expand 2-Way Reservation System

The company believes the new method of confirming seats in both directions at time of sale makes it the "first and only transportation company in the country" whose ticket agents can confirm return reservations when out-bound space is obtained. The method is said to save about two hours of checking with the destination agent.

**"Sell and Record" System**—Under the "sell and record" system, an agent at one point selling a ticket to a passenger who wants to return confirms the return space at the time of sale. The destination city is notified and makes a record of that and other sales until they have reached a pre-determined level, still leaving a margin of seats, after which all other points are notified to stop selling space on the trip involved.

Under the usual system permitting sale of space out of a city only by that city, time is required for teletype confirmation before a passenger can be notified he has return space.

## PRODUCTION ENGINEER

## WANTED

Tool designer with tool planning ability. Capable of setting up a Production Engineering section of Small Aircraft Plant, including manufacturing methods, procedures and routing systems. 25 to 35 years of exp. Apply

P-121, AVIATION NEWS  
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STITCHING FABRIC INSIDE WING OF PAA CLIPPER.

Two Pan American Airways employees inside the wing on one of the line's trans-Atlantic Clippers, helping sew fabric. A PAA stationer estimates that the fabric and equipment shop at Pan American's La Guardia Field base "is responsible for" 79,240 hand stitches and \$90,000 machine stitches in the fabric section of those boat wings.

est on routes between New York and Chicago, New York and Boston, and Chicago and Fort Worth, all runs on which the company has an idea how many passengers are coming both ways each week.

Plans are to use the method between other points where there is enough round trip business to warrant it, as additional planes come back and more non-stop flights can be made. Officials visualize it in eventual use between such points as Chicago and Los Angeles on that route.

## Open L. A. Office

Air Express International, Inc., has opened an office at Los Angeles to handle, among other things, customs clearance of shipments from Mexico via Compañía Mexicana de Aviación, S. A., Pan American Airways subsidiary. Other Air Express International offices are in New York, Miami and New Orleans.

## TCA Traffic Up

Trans-Canada Air Lines estimates that its 1944 passengers will run close to 170,000, compared with 23,468 in 1939, its first year of daily transcontinental operation.

### Data Near Completion On Case Bill Study

House Committee to have comments from State Department, CAB and ATA by due noon in early.

When the House Interstate and Foreign Commerce Committee prepares after the current Congressional recess to take up the Case Bill (H. R. 4514), to permit the Civil Aeronautics Board to issue temporary certificates for air transportation without hearing, it will have before it comment from the State Department, the Civil Aeronautics Board and probably the Air Transport Association.

The first two already have expressed their views, and the A.T. board is to discuss the proposal at its next meeting, Oct. 20, in Washington. State Department endorsed the measure in principle, observing that a bill of this type is "eminently to be desired."

**5-Favored With Limitations**—CAR is on record in favor of it, though the opinion it should be limited to situations arising in international air transportation. The Board expressed hesitancy to use on air transportation needs in continental United States the procedure set up by the measure.

It is probable, CAB says, that during the immediate post-war period, or after the close of one of its major phases, urgent need will arise for commercial air transportation additional to that already authorized between the U. S. and foreign countries.

**Swift Action Urged**—"It will be extremely important that the United States air arm be in a position to meet these needs promptly, but it will be difficult because of world conditions. To anticipate what services will be needed sufficiently far in advance of the arising of the need to permit provision of the services through the present statutory procedures," which require action either by assurance of temporary

certificates after hearing or through issuance of extradition orders under restrictive standards.

Several changes in Case's measure, which would amend the Civil Aeronautics Act, were suggested by CAA One would permit the Board to include maximum limitations on mail pay in each such certificate Case proposes that no temporary certificate authorizing carriage of mail be issued unless it appears that mail compensation is



UAL MEN IN TEST UNIT:

Head of an Air Transport Command unit at Miami that gives war planes long-range cruising time before they are ferried overseas is Maj. John M. Tullman (center), on military leave from United Air Lines. With him are Sgt. Kenneth A. Ashbury (left), his chief dragstman, and T/Sgt John P. Hirsch (right), clerk, also on leave from United.

the carrier will be less than gross postal revenue to the government from the airmail carried.

## Canadian Post-War Air Board Named

There-also group set up to establish policy and aid Dominican in projected air transport expansion.

A three-man air transport board has been established to make Canada's post-war civilian aviation policy, regulate the recently enacted Aeronautics Act, and advise the government on ways and means of bringing about a rapid and well planned expansion of transport by air.

The new Air Transport Board is headed by R. A. C. Henry, Montreal, who has been appointed for ten years. Air Vice-Marshal Alan Ferner, Ottawa, has been appointed for seven years, and J. G. Romeo Vachon, Montreal, is a member for four years.

**★ All Have Men**—C. B. Howe, Manufacturers and Supply Minister, made the announcements. All are Howemen. Henry, until recently, was Howe's executive assistant. Ferrie was chief aeronautical engineer of

Henry is also president of a government-owned company, Defense

**Consolidations, Ltd.**, and a member of the government's committee on transport/1960. He has been assistant engineer of western lines of Canadian Pacific Railway, chief of bureau of economics of Canadian National Railway, vice-president of Montreal Light, Heat and Power Co., Ltd., and during 1929 and 1932 was deputy minister of the federal department of railways and canals. He was also director of the new Department of Transport.

Former secretary of the Royal Canadian Mounted Police in 1956 when Canada went to war. He is an engineering graduate of McGill University, Montreal.

**Veteran Airman**—Yachon is one of Canada's veteran aviators, starting after the First World War with Laurendeau Air Service, one of the first Canadian commercial transport operators, working out of Montreal. He joined the Ontario Provincial Air Service, government forestry patrol and fire-fighting organization, when it was formed about 1924, then as pilot-engineer joined Western Canada Airways, predecessor of Canadian Airways which is one of the largest units in Canadian Pacific Air Lines. Since the formation of Trans-Canada Air Lines he has been with that company as assistant

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## U. S. Progress in JP

THE ARMY Air Force's announcement accompanying first publishable photographs of jet aircraft was disappointing and inadequate. That is probably because it was a joint release with the British Royal Air Force, making it impossible to cite specifically our own accomplishments. Too, the statement must have passed through many hands and much bolshering on both sides of the Atlantic before it was issued.

The British proceeded in this field. We obtained our first jet designs and equipment from England. The British deserve and should receive the highest praise from this country.

But it is time someone in the United States speaks up for our own technical officers of the Army Air Force and the aircraft industry, and reports what many experts on jet propulsion here believe. That is, that the U. S. is making the most important and gratifying progress on this work, and that we are already flying with speeds of 600 miles an hour. Don't that furnish comfort to the enemy?

The Bell Aircraft may never enter combat. The British may well put a dose of JP craft into the fight before we do. But as AVIATION NEWS indicated Sept. 11, the Avrocanet already has been cancelled in speed by at least one newer U. S. plane built by another company.

And the AAP and part of the U. S. aircraft industry are making development and production work. Another year should see this country far in the lead in the most important development that aviation has seen yet. The post-war applications, both commercially and militarily, are tremendous. But why not point out these facts to the country rather than hold down news dissemination of our accomplishments to avoid making displeasure of one of our allies, who has as much to gain from our work as we do?

## Yardstick Airparks Needed

AS THE AERONAUTICAL CHAMBER OF COMMERCE National Aircraft Council gathers members in its campaign to interest the nation in aerial highway facilities, it becomes more evident that speeches and mere drawings of various V, X or T shaped facilities superimposed on aerial photographs will not be

enough to convince municipalities or the industry of the full possibilities of these air parks, flight strips and air highways.

Needed first are full scale, working models built by experts when innovations in airport lighting, paving, drainage, landscaping, passenger and pilot comfort aids, aircraft storage and service can be tried out under actual conditions. New equipment of all types could undergo tests. Operations costs could be studied. A few such bases—even one—possibly in the Washington area, readily available to members of Congress and government officials, might well be established by the CAAA or even at the expense of the aircraft industry.

Such airparks, built in the most convenient but modern style, probably would become Meccas for state and city officials throughout the country, a spur to a spontaneous, national program. With a few working, "yardstick airparks" the Personal Aircraft Council would be practicing what it preaches, and with conviction.

## East Coast Corridors Remain

THE LIBRARY OF CONGRESS brought out the precise Declaration of Independence and the Constitution from their wartime hiding place last week for public display after receiving ample assurance from military officials that the chances were slim that Washington would be bombed.

Yet other military officers refused to make more than a pious declaration last week freeing a thin strip of land from East Coast private flying wartime restrictions. They left another thin strip still forbidden to civil flyers.

The complicated and rather absurd system of corridors between airports for private flyers estimated in effect in the thin coastal strip still left under military control by the latest ruling of the interdepartmental Air Traffic Control Board, which could do better if the military could be persuaded to relinquish token authority over the East Coast area. The ruling changing the limits of the restricted area along the coast drew another line only 5 to 10 miles nearer the coast, in most places, and running from Newport, R. I., to Carroll, N. C. Everything east of this line still was under wartime restrictions. The reason no one in Washington could say

Robert H. Wood



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Quoting: R. L. ANDERSON, Superintendent of Engineering, CHICAGO and SOUTHERN AIR LINES

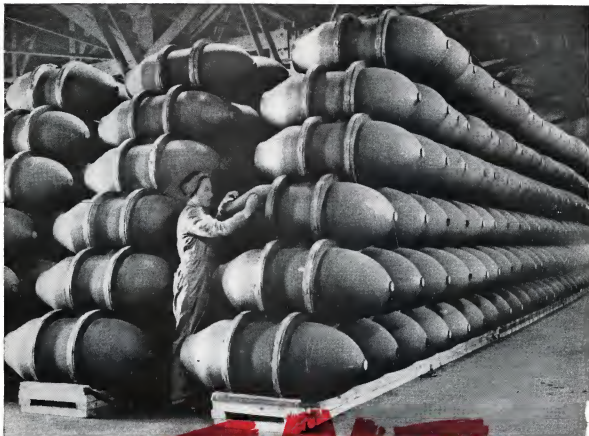
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